
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

APR1400 Design Certification

Korea Electric Power Corporation / Korea Hydro & Nuclear Power Co., LTD

Docket No. 52-046

RAI No.: 72-8020
SRP Section: 03.02.02 – System Quality Group Classification
Application Section: 3.2.2
Date of RAI Issue: 07/15/2015

Question No. 03.02.02-3

The definitions of Quality Groups A, B, C, and D do not appear consistent with the guidance of RG 1.26 and the other guidance referenced in the SRP. For instance, the definition of Quality Group A does not clearly comply with the language in 10 CFR 50.55a, which states, in part, that components that are part of the reactor coolant pressure boundary must be Quality Group A unless failure of the component during normal reactor operation would not prevent the reactor to be shut down and cooled down in an orderly manner, assuming makeup is provided by the reactor coolant makeup system. In Page 3.2-6 of DCD Section 03.02.02, the applicant discusses the “loss of enough reactor coolant to prevent orderly shutdown and cooldown,” but this does not capture the full scope of the regulation. The applicant has stated that the quality groups are assigned in accordance with RG 1.26, but the text does not appear consistent. Please observe and incorporate the guidance into the definitions of quality groups, or justify why exception is taken to the guidance.

Response

The definition of Quality Group in Subsection 3.2.2 of DCD Tier 2 will be revised to be consistent with the guidance of RG 1.26.

Impact on DCD

Subsection 3.2.2 of DCD Tier 2 will be revised as shown in the Attachment.

Impact on PRA

There is no impact on the PRA.

Impact on Technical Specifications

There is no impact on the Technical Specifications.

Impact on Technical/Topical/Environmental Reports

There is no impact on any Technical, Topical, or Environmental Report.

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The quality group classifications and codes and standards for mechanical and fluid systems and components are listed in Table 3.2-1 and are shown on the applicable flow diagrams. The flow diagrams identify the classification boundaries of interconnecting piping and valves, as well as the interfaces between the safety-related and non-safety-related portions of each system. The COL applicant is to identify the quality group classification of site-specific systems and components and their applicable codes and standards (COL 3.2(2)).

Quality Groups A through E and G are defined below.

Quality Group A (ASME Section III, Subsection NB)

Quality Group A applies to RCPB components whose failure could cause a loss of enough reactor coolant to prevent orderly reactor shutdown and cooldown, assuming makeup is provided only by the normal makeup systems. Normal makeup systems are systems that are normally used to maintain reactor coolant inventory during startup, hot standby, power operation, and cooldown using onsite power.

Quality Group B (ASME Section III, Subsection NC)

Quality Group B applies to the containment building, components in the RCPB not in Quality Group A, and the components of safety systems that are necessary to perform the following:

- a. Remove heat directly from the reactor or containment building
- b. Circulate reactor coolant for safety-related purposes
- c. Control radioactivity released within the containment building
- d. Control hydrogen concentrations in the containment building atmosphere
- e. Introduce emergency negative reactivity to make the reactor subcritical or restrict the addition of positive reactivity (e.g., safety injection system)

Replace this with the attached "Replacement"

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- f. Provide or maintain sufficient reactor coolant inventory for emergency core cooling (e.g., IRWST)

Quality Group B safety systems include the following:

- a. The containment, including those valves and components of closed systems used to effect isolation of the containment atmosphere from the outside environs
- b. Shutdown cooling system (SCS)
- c. Portions of the auxiliary systems that form a reactor coolant letdown and makeup loop
- d. Containment spray system (CSS)
- e. The containment building air cleanup system and the portions serving as extensions of the containment building during air cleanup recirculation after an accident
- f. Portions of the steam and main feedwater system (MFS) extending from and including the secondary side of the steam generator (SG) up to and including the wall penetration anchors beyond the outermost containment isolation valves
- g. Containment hydrogen control system

Quality Group C (ASME Section III, Subsection ND)

Quality Group C applies to ASME Section III components that are not in Quality Group A or B and the components of safety systems that are necessary to perform the following:

- a. Release to the environment radioactive gases normally required to be held for decay if they fail
- b. Provide or support a safety system function

Replace this with the attached "Replacement"

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- c. Control the airborne radioactivity released outside the containment building
- d. Provide or maintain sufficient reactor coolant inventory for core cooling (e.g., reactor coolant normal makeup function)
- e. Introduce negative reactivity to achieve or maintain subcritical reactor conditions (e.g., boron makeup function)
- f. Remove decay heat from spent fuel

Quality Group C safety systems include the following:

- a. Portions of the auxiliary system that provide boric acid to the reactor coolant
- b. Portions of the cooling water systems that cool other safety systems, the MCR, and safety-related electrical components
- c. Spent fuel pool (SFP) cooling system
- d. Condensate storage tanks
- e. Air cleanup systems other than those listed under Quality Group B (e.g., MCR, fuel building air cleanup)
- f. Portions of the auxiliary systems that form the purification section of the letdown loop
- g. Portions of the radioactive waste processing system
- h. Onsite emergency power supply supporting auxiliary systems

Quality Group D

Replace this with the attached "Replacement"

Quality Group D applies to non-safety-related systems and components that are not covered under Quality Group A, B, or C and that are designed to ASME B31.1 (Reference 13) code

Replacement

Quality Group A

Quality Group A applies to RCPB components whose failure would not prevent the reactor from being shut down and cooled down in an orderly manner with normal makeup and components that are or can be isolated from the reactor coolant system by two valves in series (with automatic closure of open valves).

Quality Group A pressure retaining components and their supports are designed to meet the requirements for Class 1 components in ASME Section III, Division I, Subsection NB and NF.

Quality Group B

Quality Group B applies to pressure-retaining components and their supports that support the systems or portions of systems listed in the regulatory position C.1 of RG 1.26.

These systems or portions of systems are as follows:

- a. Portions of the RCPB that are excluded from Quality Group A
- b. Systems or portions of systems important to safety that are designed for the (i) emergency core cooling, (ii) post-accident containment heat removal, or (iii) post-accident fission product removal
- c. Systems or portions of systems important to safety that are designed for (i) reactor shutdown or (ii) residual heat removal
- d. Portions of the steam and feedwater systems of pressurized-water reactors extending from and including the secondary side of steam generators up to and including the outermost containment isolation valves, and connected piping up to and including the first valve (including a safety or relief valve) that is either normally closed or capable of automatic closure during all modes of normal reactor operation
- e. Systems or portions of systems that are connected to the reactor coolant pressure boundary and are not capable of being isolated from the boundary during all modes of normal reactor operation by two valves, each of which is either normally closed or capable of automatic closure

Quality Group B pressure retaining components and their supports are designed to meet the requirements for Class 2 components in ASME Section III, Division I, Subsection NC, NF and NG.

Quality Group C

Quality Group C applies to pressure-retaining components and their supports that are not part of the reactor coolant pressure boundary or included in Quality Group B but part of the following:

- a. Cooling water and auxiliary feedwater systems or portions of those systems important to safety that are designed for emergency core cooling, post-accident containment heat removal, post-accident containment atmosphere cleanup, or residual heat removal from the reactor and from the spent fuel storage pool
- b. Cooling water and seal water systems or portions of those systems⁵ important to safety that are designed for the functioning of components and systems important to safety
- c. Systems or portions of systems that are connected to the reactor coolant pressure boundary and are capable of being isolated from that boundary during all modes of normal reactor operation by two valves, each of which is either normally closed or capable of automatic closure
- d. Systems, other than radioactive waste management systems, not covered by the above item a. through item c. that contain or may contain radioactive material and whose postulated failure would result in conservatively calculated potential offsite doses that exceed 0.5 rem to the whole body or its equivalent to any part of the body

Quality Group C pressure retaining components and their supports are designed to meet the requirements for Class 3 components in ASME Section III, Division I, Subsection ND and NF.

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Docket No. 52-046

RAI No.: 72-8020
SRP Section: 03.02.02 – System Quality Group Classification
Application Section: 3.2.2
Date of RAI Issue: 07/15/2015

Question No. 03.02.02-4

During review of Quality Group G classifications in DCD Tier 2, Section 3.2.2, the staff noted that although Quality Group G was defined as “designed to codes other than ASME Section III,” ASME Section III CC-2001 with 2003 Addenda is listed as a Code and Standard for a Quality Group G SSCs in DCD Table 3.2-1. This does not appear consistent with the definition of Quality Group G indicated by the applicant in DCD Tier 2, Section 3.2.2. Please clarify the use of ASME Section III CC-2001 with 2003 Addenda as a Quality Group G Code. Additionally, please verify that this code for concrete containments is the correct code to apply to all referenced SSCs, such as the trisodium phosphate baskets (which are described in DCD Tier 2, Sections 6.1.1.2.1, 6.8.2.1.3, and 6.8.2.2.1 as stainless steel baskets).

Response

The ASME Section III, Division II, CC Code for a concrete containment is not applied to all referenced SSCs. The Code is applied for structural design of the containment that is part of the pressure boundary of the reactor containment building, as described in DCD Tier 2, Section 3.8.1.

The IRWST and HVT are lined with a stainless steel liner plate (SSLP) to prevent leakage, but there is no specific design code for the SSLP. The SSLP for the IRWST and HVT are designed in accordance with ASME Section III, Division 2, CC-2001 since the SSLP is similar in function to the containment liner plate installed for leak tightness of the pressure boundary in the Reactor Containment Building. The trisodium phosphate (TSP) baskets are composed of steel structures and designed in accordance with AISC N690.

The definition of Quality Group G will be revised to clearly state the applicable codes and standards. The standards applied to the TSP baskets of the In-containment refueling water storage system will be also revised as shown in the Attachment.

Impact on DCD

DCD Section 3.2.2 and Table 3.2-1 will be revised as indicated on the attached markup.

Impact on PRA

There is no impact on the PRA.

Impact on Technical Specifications

There is no impact on the Technical Specifications.

Impact on Technical/Topical/Environmental Reports

There is no impact on any Technical, Topical, or Environmental Report.

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criteria or other codes and standards listed in Table 1 of NRC RG 1.26. Quality Group D may include parts or portions of systems that contain or may contain radioactive material.

The radwaste management system and steam generator blowdown system (SGBDS), which contain or may contain radioactive materials, are designed in accordance with applicable codes and standards, QA requirements, and guidance provided in NRC RG 1.143.

Quality Group E

Quality Group E pertains to non-safety-related fluid systems and components that are designed to codes other than ASME B31.1 code criteria and codes and standards listed in NRC RG 1.26.

Quality Group G

those listed for Quality Group A, B and C in Table 1 of NRC RG 1.26

Quality Group G pertains to safety-related fluid systems and components that are designed to codes ~~other than ASME Section III.~~

and standards

3.2.3 Safety Class

Fluid system components important to safety are classified in accordance with ANSI/ANS-51.1-1983 (Reference 9). Safety Class 1, 2, 3, and non-nuclear safety (NNS) of ANSI/ANS-51.1-1983 are equivalent, on a functional basis, to Quality Groups A, B, C, D of NRC RG 1.26. The criteria establish safety classes that are used as a guide to the selection of codes, standards, and quality assurance provisions for the design and construction of the components. The safety class designations are also used as a guide to the fluid system components that are classified as seismic Category I and II (see Subsection 3.2.1).

The safety classification in ANSI/ANS-51.1-1983 is summarized as follows:

a. Safety Class 1

Safety Class 1 (SC-1) applies to pressure-retaining portions and supports of mechanical equipment that form part of the RCPB whose failure could cause a

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Table 3.2-1 (37 of 86)

Item No. / Principal SSCs	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
50. IS – Security							
a. Security CCTV subconsole and color graphic console	AB	NNS	N/A	10 CFR 73.55-2010 IEEE 692-2010	A	II	(3)(d), (6)
b. Other security equipment	ALL	NNS	N/A	N/A	N/A	III	(6)
51. IW – In-Containment Refueling Water Storage							
a. In-containment refueling water storage tanks	RCB	SC-3	G	ASME Sec. III CC-2001 with 2003 Addenda	Yes	I	
b. Holdup volume tank	RCB	SC-3	G	ASME Sec. III CC-2001 with 2003 Addenda	Yes	I	
c. Trisodium phosphate baskets	RCB	SC-3	N/A	ASME Sec. III CC-2001 with 2003 Addenda	Yes	I	
d. IRWST sump strainers	RCB	SC-3	G	AISC N690-1994&2004 (Supplement No.2)	Yes	I	
e. Swing panels	RCB	SC-3	G	ASME AG-1-2009	Yes	I	
f. In-containment refueling water storage tank spillway	RCB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
g. Holdup volume tank flooding lines including the power operated valves V001 and 002 (MOV)	RCB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
h. Reactor cavity flooding lines including the power operated valves V003 and 004 (MOV)	RCB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	

, ACI 349-1997

, ACI 349-1997

AISC N690-1994&2004
(Supplement No.2)

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RAI No.: 72-8020
SRP Section: 03.02.02 – System Quality Group Classification
Application Section: 3.2.2
Date of RAI Issue: 07/15/2015

Question No. 03.02.02-5

The following list summarizes some inconsistencies or errors found in the review of DCD Tier 2, Sections 3.2.1 and 3.2.2 and associated sections. In accordance with 10 CFR 52.47, these inconsistencies should be addressed, and the DCD should be checked for additional related issues.

1. In Tier 2, Section 3.2.6, ASME B31.1 does not list a year, It appears that multiple years of this code are used, per Table 3.2-1. Please clarify which year should be used in both the text and the table, and justify or correct any inconsistencies.
2. In Tier 2, Section 3.2.6, References 16 and 17 indicate the 2001 edition of the ASME BPV Code. Tier 2, Table 3.2-1 shows the 2001 edition with 2003 addenda for Reference 17 and 2007 with 2008 addenda for Reference 16. Please confirm the correct year and justify or correct any inconsistencies.
3. In Tier 2, Table 3.2-1, Note 7 should refer to IEEE Std. 497 as accepted by the NRC in RG 1.97, as this regulatory guide includes regulatory positions on the content of the standard.
4. DCD Tier 2, page 3.2-78 is not consistent with the diagrams in Section 6.3, specifically the identification of valve 323 as a classification boundary. It appears that valve 332 was intended. Please clarify.
5. DCD Tier 2, page 3.2-74 lists "SC piping and valves from downstream of SI-653, 654 to upstream of and excluding SI- 178, 168" as Quality Group B. In reviewing the associated system diagram (Figure 6.3-63), there is no class break identified at SI 178, 168.

Response

Inconsistencies and errors in DCD Tier 2, Section 3.2 including Table 3.2-1 and associated sections have been reviewed. DCD Tier 2, Section 3.2.6 and Table 3.2-1 will be revised to correct the information, including the five examples listed above.

In addition, in a meeting held on June 30, 2015 on subsection 3.2.1 MEB issues (Issue #3), KHNP committed to clarify the column header "Principal SSCs" in Table 3.2-1. KHNP has changed the term "Item No/Principal SSCs" to "SSC identification" to prevent confusion.

Impact on DCD

DCD, Tier 2, Section 3.2.6 and Table 3.2-1 will be revised as indicated in the attached markup.

Impact on PRA

There is no impact on the PRA.


Impact on Technical Specifications

There is no impact on the Technical Specifications.

Impact on Technical/Topical/Environmental Reports

There is no impact on any Technical, Topical, or Environmental Report.

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5. Regulatory Guide 1.29, "Seismic Design Classification," Rev. 4, U.S. Nuclear Regulatory Commission, March 2007.
6. Regulatory Guide 1.143, "Design Guidance for Radioactive Waste Management Systems, Structures, and Components Installed in Light-Water-Cooled Nuclear Power Plants," Rev. 2, U.S. Nuclear Regulatory Commission, November 2001.
7. Regulatory Guide 1.151, "Instrument Sensing Lines," Rev. 1, U.S. Nuclear Regulatory Commission, July 2010.
8. Regulatory Guide 1.189, "Fire Protection for Nuclear Power Plants," Rev. 2, U.S. Nuclear Regulatory Commission, October 2009.
9. ANSI/ANS 51.1-1983, "Nuclear Safety Criteria for the Design of Stationary Pressurized Water Reactor Plants," American Nuclear Society, 1983.
10. 10 CFR Part 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," U.S. Nuclear Regulatory Commission.
11. Regulatory Guide 1.26, "Quality Group Classifications and Standards for Water-, Steam-, and Radioactive-Waste-Containing Components of Nuclear Power Plants," Rev. 4, U.S. Nuclear Regulatory Commission, March 2007.
12. 10 CFR Part 50, Section 50.55a, "Codes and Standards," U.S. Nuclear Regulatory Commission. ,2010

13. ASME B31.1, "Power Piping," The American Society of Mechanical Engineers.
14. IEEE Std. 308-2001, "IEEE Standard Criteria for Class 1E Power Systems for Nuclear Power Generating Stations," Institute of Electrical and Electronics Engineers, 2001.
15. IEEE Std. 603-1991, "IEEE Standard Criteria for Safety Systems for Nuclear Power Generating Stations," Institute of Electrical and Electronics Engineers, 1991.
16. ASME Section III, Division 1, Subsection NE, "Class MC Components," The American Society of Mechanical Engineers, 2001. ^ the 2007 Edition with the 2008 Addenda
17. ASME Section III, Division 2, Subsection CC "Concrete Containments," American Society of Mechanical Engineers, 2001. ^ the 2001 Edition with the 2003 Addenda

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Table 3.2-1 (1 of 86)

Classification of Structures, Systems, and Components⁽¹⁾

Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
I. Major Structures							
1. Containment Building (including mechanical and electrical penetrations)		SC-2	B	ASME Sec. III NE-2007 with 2008 addenda, ASME Sec. III CC-2001 with 2003 Addenda	Yes	I	
2. Containment Building Internal Structures (including radiation shield)		SC-3	N/A	ACI 349-1997, ANSI/AISC N690-1994 incl. Supp. 2 (2004)	Yes	I	
3. Auxiliary Building (including TSC)		SC-3	N/A	ACI 349-1997, ANSI/AISC N690-1994 incl. Supp. 2 (2004)	Yes	I	(4)
4. Turbine Generator Building		NNS	N/A	ACI 318-2008 AISC 360-2005	A	II	(3)(d)
5. Compound Building		NNS	N/A	ACI 318-2008 AISC 360-2005	A	II	(3)(d), (4)
6. Emergency Diesel Generator Building		SC-3	N/A	ACI 349-1997, ANSI/AISC N690-1994 incl. Supp. 2 (2004)	Yes	I	
7. Alternate AC Generator Building		NNS	N/A	ACI318-2008	A	II	(3)(d)
8. Essential Service Water Building		SC-3	N/A	ACI349-1997, ANSI/AISC N690-1994 incl. supp. 2(2004)	Yes	I	

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Table 3.2-1 (2 of 86)

Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
9. Essential Service Water / Component Cooling Water Heat Exchanger Building		SC-3	N/A	ACI349-1997, ANSI/AISC N690-1994 incl. supp. 2(2004)	Yes	I	
II. Systems and Components							
1. AC – Auxiliary Process Cabinet							
a. APC A/B/C/D	AB	SC-3	N/A	IEEE-603-1991, IEEE 323-2003, IEEE 344-2004	Yes	I	
b. APC N1/N2	AB	NNS	N/A	N/A	A	III	
2. AF – Auxiliary Feedwater							
a. Auxiliary feedwater pumps							
1) Pumps	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
2) Motors	AB	SC-3	N/A	ANSI C50.41 NEMA C50.41-1982	Yes	I	
b. Auxiliary feedwater pump suction piping and valves from auxiliary feedwater suction manual valves (AFW-V1001 A/B, AFW-V1002 A/B)	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
c. Auxiliary feedwater pump discharge piping and valves up to and and including emergency cooling water injection line manual valve (AFW-V2102 A/B) but excluding auxiliary feedwater isolation valves (AFW-V043 ~ 046)	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	

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d. Auxiliary feedwater pump discharge piping from auxiliary feedwater isolation valves (AFW-V043 ~ 046) up to feedwater connection	RCB	SC-2	B	ASME Sec. III Div. 1 NC-2007 with 2008 addenda	Yes	I	
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Table 3.2-1 (3 of 86)

Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
e. Auxiliary feedwater pump recirculation piping and valves up to and including auxiliary feedwater recirculation isolation valves (AFW-V1011 A/B, AFW V1013 A/B)	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
f. Emergency cooling water injection line excluding manual valves (AFW-V2102 A/B)	AB	NNS	D	ASME B31.1-2010	A	I	03.02.02-5
g. Non-safety-related piping/equipment in safety-related areas	AB	NNS	D	ASME B31.1-2010	A	II	(3)(d) 03.02.02-5
h. Other non-safety-related piping/equipment in non-safety-related areas	AB	NNS	D	ASME B31.1-2010	N/A	III	03.02.02-5
3. AN – Alarm							
a. Alarm processing server and display device (QIAS-N) Qualified indication and alarm-non-safety (QIAS-N) alarm	AB	NNS	N/A	N/A	A	I	03.02.02-5
b. Alarm processing server and display device (IPS) Information processing system (IPS) alarm	AB	NNS	N/A	N/A	A	II	(3)(d) 03.02.02-5
e. Alarm sound device and speaker	AB	NNS	N/A	N/A	A	II	(3)(d) 03.02.02-5
4. AS – Auxiliary Steam							
a. Containment isolation valves and associated piping	AB, RCB	SC-2	B	ASME Sec. III Div.1 NC-2007 with 2008 addenda	Yes	I	
b. Non-safety-related piping and components in safety-related areas	RCB, AB	NNS	D	ASME B31.1-2010	A	II	(3)(d)

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c. Others	TGB, CB	NNS	D	ASME B31.1-2010	N/A	III	
5. AT – Auxiliary Feedwater Pump Turbine							
a. Auxiliary feedwater pump turbines	AB	SC-3	C/GC	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
b. Steam admission/exhaust/preheating lines and valves	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
c. Non-safety-related piping/component in safety-related areas	AB	NNS	D	ASME B31.1-2010	A	II	(3)(d)
d. Others	AB	NNS	D	ASME B31.1-2010	N/A	III	
6. AX – Auxiliary Feedwater Storage and Transfer							
a. Auxiliary feedwater storage tank	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
b. Auxiliary feedwater makeup piping up to and including auxiliary feedwater storage tank inlet manual valves (AX-V1605, AX-V1606)	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
c. Auxiliary feedwater makeup piping from auxiliary feedwater storage tank inlet manual valves (AX-V1605, AX-V1606) up to and including auxiliary feedwater storage tank makeup check valve (AX-V1600)	AB	NNS	D	ASME B31.1-2010	A	II	(3)(a) ; (3)(d), (3)(e)
d. Auxiliary feedwater pump suction piping and valves including emergency cooling water injection line manual valves (AX-2679A/B) from auxiliary feedwater storage tanks up to and excluding auxiliary feedwater suction manual valves (AFW-V1001 A/B, AFW-V1002 A/B)	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	

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e. Component cooling water / essential chilled water makeup piping up to and including component cooling water / essential chilled water makeup pump supply valves (AX-V1607, AX-V1608)	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
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Table 3.2-1 (5 of 86)

Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
f. Auxiliary feedwater storage tank sampling piping up to and including auxiliary feedwater storage tank grab sample test valves (AX-V2642, AX-V2644)	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
g. Auxiliary feedwater storage tank overflow piping	AB	NNS	D	ASME B31.1-2010	A	II	(3)(d)
h. Auxiliary feedwater storage tank drain piping from auxiliary feedwater storage tank drain valves (AX-V2642 , AX-V2641, AX-V2643) to condensate polishing area sump in safety-related area	AB	NNS	D	ASME B31.1-2010	A	II	(3)(d)
i. Auxiliary feedwater storage tank drain piping up to condensate polishing area sump in non-safety-related area	TGB	NNS	D	ASME B31.1-2010	N/A	III	
j. Auxiliary feedwater storage tank cross connection line up to and including AFWST connection manual valves (AX-V1621, AX-V1622)	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
k. Auxiliary feedwater storage tank cross connection line between and excluding AFWST connection manual valves (AX-V1621, AX-V1622)	AB	NNS	D	ASME B31.1-2010	A	II	(3)(a) , (3)(b) , (3)(d)
l. Non-safety backup supply line up to and including AFW pump suction manual valves (AX-V1623, AX-V1624)	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	

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Table 3.2-1 (6 of 86)

Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks	
m. Non-safety backup supply line from AFW pump suction manual valves (AX-V1623, AX-V1624) up to and including raw water supply valve (AX-V1208) and condensate storage tank water supply valve (AX-V1627)	AB	NNS	D	ASME B31.1-2010	A	II	(3)(b) , (3)(d)	03.02.02-5
o. Emergency cooling water injection line excluding manual valve (AX-V2679A/B)	AB	NNS	D	ASME B31.1-2010	A	I	(3)(d)	03.02.02-5
7. BI – Bypass and Inoperable Status Indication								
a. Control logic and indication device		NNS	N/A	IEEE 603-1991	A	II	(3)(d), (8)	
8. CA – Condenser Vacuum								
a. Containment isolation valves and associated piping	AB, RCB	SC-2	B	ASME Sec. III Div. 1 NC-2007 with 2008 addenda	Yes	I		
b. Non-safety-related piping and components in safety-related areas	AB, RCB	NNS	D	ASME B31.1-2010	A	II	(3)(d)	
c. Condenser vacuum pumps, booster fan and other components	TGB	NNS	D	ASME B31.1-2010 HEI Standards-2006 ASME AG-1-2009	N/A	III		03.02.02-5
9. CC – CCW								
a. CCW heat exchangers	CCWHXB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I		
b. CCW pumps	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I		
c. CCW makeup pumps	AB	SC-3	C	ASME Sec. III ND-2007	Yes	I		

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				with 2008 addenda			
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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
d. CCW surge tanks	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
e. Chemical addition tank	AB	NNS	D	ASME Sec. VIII-2007 with 2008 addenda	A	II	(3)(d)
f. Component cooling water supply and return piping and valves excluding the following 1) through 9) below:	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
1) Containment penetration piping of RCP cooler supply line between and including the valves, CC-231 and CC-1099 in the division I	RCB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
2) Containment penetration piping of RCP cooler return line between and including the valves, CC-249, CC-250, and CC-1100 in the division I	RCB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
3) RCP cooler supply and return piping between the valves, CC-1099, CC-249, and CC-1100 in the division I	RCB	NNS	D	ASME B31.1-2010	A	II	(3)(d)

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
4) Non-essential supply and return piping between the valve CC-145 and CC-147 in the division I excluding the following v) through vii) below:	AB	NNS	D	ASME B31.1-2010	A	II	(3)(d)
5) Containment penetration piping of letdown heat exchanger supply line between and including the valves CC-296, CC-297, and CC-1685 in the division I	RCB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
6) Containment penetration piping of letdown heat exchanger return line between and including the valve CC-301, CC-302, and CC-1686 in the division I	RCB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
7) Letdown heat exchanger supply and return piping between the valves, CC-297, CC-301, CC-1685, and CC-1686 in the division I	RCB	NNS	D	ASME B31.1-2010	A	II	(3)(d)
8) Non-essential supply and return piping between the valve CC-146 and CC-148 in the auxiliary building of the division II	AB	NNS	D	ASME B31.1-2010	A	II	(3)(d)

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
9) Non-essential supply and return piping in the compound building of the division II	RCB	NNS	D	ASME B31.1-2010	N/A	III	
10. CD – Condensate							
a. Piping in auxiliary bldg.	AB	NNS	D	ASME B31.1-2010	A	II	(3)(d)
b. Condenser, condensate pumps, tanks, valves, strainers, and feed water heaters	TGB	NNS	D	ASME B31.1-2010	N/A	III	
c. Deaerator storage tank	TGB	NNS	D	ASME Sec. III NB -2007 with 2008 addenda	A	III	(3)(e)
d. Feedwater Heaters	TGB	NNS	D	ASME Sec. III NB -2007 with 2008 addenda	S	III	
ee. Other piping	TGB	NNS	D	ASME B31.1-2010	N/A	III	
11. CE – Control Element Assembly Drive							
a. Control element drive mechanism	RCB	SC-1	A	ASME Sec. III NB -2007 with 2008 addenda	Yes	I	
1) Pressure housing assembly	RCB	SC-1	A	ASME Sec. III NB -2007 with 2008 addenda	Yes	I	
2) Motor assembly	RCB	SC-2	B	N/A	Yes	I	
3) Extension shaft assembly	RCB	SC-2	B	N/A	Yes	I	
b. Reactor trip switchgear	RCB	SC-3	N/A	IEEE-603-1991	Yes	I	
c. Rod drive motor generator set	RCB	NNS	N/A	N/A	N/A	III	

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
12. CI – Containment							
a. Mechanical penetration		SC-2	B	ASME Sec. III NC - 2007 with 2008 addenda	Yes	I	
b. Electrical penetration	RCB	SC-2	N/A	IEEE-317-1983 IEEE 323-2003 IEEE 344-2004	Yes	I	
13. CM – Containment Monitoring							
a. Containment Isolation	RCB	SC-2	B	IEEE-323-2003 IEEE- 344-2004	Yes	I	
b. Safety-related sample tubing and valves	RCB/AB	SC-2	B	IEEE-323-2003 IEEE- 344-2004	Yes	I	
c. Other safety-related equipment	RCB/AB	SC-3	G	IEEE-323-2003 IEEE- 344-2004	Yes	I	
d. Non-safety-related equipment	AB	NNS	D	N/A	A	II	(3)(d)
14. CN – Soft Control							
a. Safety soft control (ESCM)	AB	SC-3	N/A	IEEE-323-2003 IEEE-344-2004 IEEE-379-2000 IEEE-603-1991 IEEE-7-4.3.2-2003	Yes	I	
b. Non-safety soft control (IFPD)	AB	NNS	N/A	N/A	A	II	(3)(d)

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
15. CP – Condensate Polishing							
a. Condensate polishing package	TGB	NNS	D	ASME Sec. VIII-2007 with 2008 addenda ASME B31.1-2010	N/A	III	03.02.02-5
a. Condensate polishing package							
1) Vessels	TGB	NNS	D	ASME Sec. VIII-2007 with 2008 addenda	N/A	III	03.02.02-5
2) Piping and valves	TGB	NNS	D	ASME B31.1-2010	N/A	III	03.02.02-5
16. CQ – Communication							
a. Equipment in safety-related areas							
1) Telephone, page phone in MCR	AB	NNS	N/A	N/A	A	II	(3)(d)
2) Evacuation alarm board in MCR	AB	NNS	N/A	N/A	A	II	(3)(d)
3) Page phone full booth	AB	NNS	N/A	N/A	A	II	(3)(d)
b. Others	ALL	NNS	N/A	N/A	N/A	III	

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
17. CR – Core Protection Calculation System							
a. CPC (core protection calculator)	AB	SC-3	N/A	IEEE-323-2003	Yes	I	
b. CEAC (control element assembly calculator)	AB	SC-3	N/A	IEEE-338-1987 IEEE-344-2004 IEEE-379-2000	Yes	I	
c. CPP (CEA position processor)	AB	SC-3	N/A	IEEE-383-2003	Yes	I	
d. OM (operator's module)	AB	SC-3	N/A	IEEE-603-1991 IEEE-7-4.3.2-2003	Yes	I	
e. I/O simulator	AB	NNS	N/A	N/A	N/A	III	
18. CS – Containment Spray							
a. Containment spray pumps	AB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
b. Containment spray heat exchangers	AB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
c. Containment spray miniflow heat exchangers	AB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
d. Spray nozzles (including ECSBS spray nozzles)	RCB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
e. CSS piping and valves from CSS suction line to containment penetration, ECSBS piping and valve from V1013 to containment penetration	AB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
f. CSS piping and valves from containment penetration to CSS spray nozzles, ECSBS piping and valve from containment penetration to ECSBS spray nozzles	RCB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
g. ECSBS piping and valves from external siamese hose connection to V1013 (excluding V1013)	AB	NNS	D	ASME B31.1-2010	A	I	(3)(b)
h. CSS refueling pool piping to V1011 (excluding V1011)	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
19. CT – Condensate Storage and Transfer							
a. Condensate storage tanks with associated components, and valves	TGB	NNS	D	ASME Sec. VIII-2007 with 2008 addenda / ASME B31.1-2010 / ASME B16.34-2009 API 620-2008	AN/A	III	(3)(b)
b. Non-safety-related piping in safety-related area	AB	NNS	D	ASME B31.1-2010	A	II	(3)(b) ; (3)(d)

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
20. CV – Chemical and Volume Control							
a. Regenerative heat exchanger	RCB	SC-2/SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
b. Letdown heat exchanger (tube/shell)	RCB	SC-2/SC-3	B/C	ASME Sec. III NC/ND-2007 with 2008 addenda	Yes	I	(N-1)
c. Charging pump miniflow heat exchanger	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
d. Purification ion exchangers	AB	NNS	D	ASME Sec. VIII-2007 with 2008 addenda	A	II	(3)(d)
e. Deborating ion exchanger	AB	NNS	D	ASME Sec. VIII-2007 with 2008 addenda	A	II	(3)(d)
f. Volume control tank	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
g. Chemical addition system	AB	NNS	D	ASME Sec. VIII-2007 with 2008 addenda	N/A	III	
h. Boric acid batching tank	AB	NNS	D	ASME Sec. VIII-2007 with 2008 addenda	N/A	III	
i. Charging pumps / charging pump motors	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
j. Auxiliary charging pump	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
k. Auxiliary charging pump suction stabilizer/pulsation dampener	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
l. Boric acid makeup pumps	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
m. Reactor makeup water pumps	AB	NNS	D	ASME B31.1-2010 / HI Std	N/A	III	
n. Boric acid concentrator							
1) Process unit	AB	NNS	D	ASME Sec. VIII-2007 with 2008 addenda	N/A	III	
2) I&C assembly	AB	NNS	D	ASME Sec. VIII-2007 with 2008 addenda	N/A	III	
o. Preholdup ion exchanger	AB	NNS	D	ASME Sec. VIII-2007 with 2008 addenda	A	II	(3)(d)
p. Boric acid condensate ion exchanger	AB	NNS	D	ASME Sec. VIII-2007 with 2008 addenda	N/A	III	
q. Reactor drain pumps	AB	NNS	D	ASME Sec. VIII-2007 with 2008 addenda	A	II	(3)(d)
r. Holdup pumps	AB	NNS	D	ASME Sec. VIII-2007 with 2008 addenda	N/A	III	
s. 1) Reactor drain tank	RCB	NNS	D	ASME Sec. VIII-2007 with 2008 addenda	N/A	III	
2) Reactor drain tank support	RCB	NNS	D	ASME Sec. VIII-2007 with 2008 addenda	A	II	(3)(d)
t. Holdup tank	Yard	NNS	D	API-650-2007 with 2008 addendum	N/A	III	
u. Equipment drain tank	AB	NNS	D	ASME Sec. VIII-2007 with 2008 addenda	A	II	(3)(d)
v. Boric acid storage tank	Yard	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
w. Reactor makeup water tank	Yard	NNS	D	API-620-2008 with 2009, 2010 addendum	N/A	III	
x. Gas stripper							
1) Process unit	AB	NNS	D	ASME Sec. VIII-2007 with 2008 addenda	A	II	(3)(d)
2) I&C assembly	AB	NNS	D	ASME Sec. VIII-2007 with 2008 addenda	N/A	III	
y. Purification filters	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
aa. Reactor drain filters	AB	NNS	D	ASME Sec. VIII-2007 with 2008 addenda	A	II	(3)(d)
ab. Seal injection filters	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
ac. Reactor makeup water filter	AB	NNS	D	ASME Sec. VIII-2007 with 2008 addenda	N/A	III	
ad. Boric acid filter	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
ae. Letdown strainer	AB	NNS	D	ASME Sec. VIII-2007 with 2008 addenda	A	II	(3)(d)
af. Preholdup strainer	AB	NNS	D	ASME Sec. VIII-2007 with 2008 addenda	A	II	(3)(d)
ag. Boric acid condensate ion exchanger strainer	AB	NNS	D	ASME B31.1-2010 /B16.34-2009	N/A	III	
ah. Boric acid batching strainer	AB	NNS	D	ASME B31.1-2010 /B16.34-2009	N/A	III	

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
ai. Boric acid batching eductor	AB	NNS	D	ASME B31.1-2010 /B16.34-2009	N/A	III	
aj. Letdown orifices	RCB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
ak. Charging restricting orifices	AB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
al. Piping and Valves							
1) Within RCPB	RCB	SC-1	A	ASME Sec. III NB-2007 with 2008 addenda	Yes	I	
2) Letdown, charging, seal injection, and aux. spray piping and valves							
(a) Inside containment	RCB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
(b) Letdown piping and valves from CV-523 outlet to CV-520 outlet	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
(c) Letdown piping and valves from CV-520 outlet to CV-415 inlet	AB	NNS	D	ASME B31.1-2010 /B16.34-2009	A N/A	II III	(3)(d), CV-870/ 894/895/ 896: Seismic Cat. III
(d) Letdown piping and valves from CV-415 inlet to VCT inlet	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
(e) RCP CBO piping and valves from CV-505 outlet to VCT inlet	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
(f) RCP seal injection piping and valves form seal injection tee to CV-255 inlet	AB, RCB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
(g) Charging piping and valves from VCT outlet to CV-524 inlet	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
3) Containment isolation	AB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
4) Reactor water drain collection	AB						
(a) Inside containment (reactor drain tank)	RCB	NNS	D	ASME B31.1- 2007 with 2008, 2009 addenda 2010	A	II	(3)(d)
(b) Outside containment (equipment drain tank, reactor drain pump suction and discharge to holdup tank)	AB	NNS	D	ASME B31.1- 2007 with 2008, 2009 addenda 2010	A	II	(3)(d)
5) Boric acid recovery system (holdup tank to boric acid storage tank and reactor makeup water tank)	Yard	NNS	D	ASME B31.1- 2007 with 2008, 2009 addenda 2010	A N/A	II III	(3)(d), CV-686/ 127: Seismic Cat. II

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
6) Boric acid supply (BAST to VCT/charging pump suction)	Yard, AB	SC-3	C	ASME Sec. III ND- 2007 with 2008 addenda 2010	Yes	I	
7) Reactor makeup water supply (RMWT to CV-186 inlet)	Yard, AB	NNS	D	ASME B31.1-2007 with 2008, 2009 addenda	A	II	(3)(d)
8) BAMP to IRWST isolation valve CV-553	AB, RCB	NNS	D	ASME B16.34 - 2009	A	II	(3)(d), (3)(e)
9) BABT to BAST isolation valve CV-126	AB	NNS	D	ASME B16.34 - 2009	A	III	(3)(e)
21. CW – Circulating Water							
a. CW pumps	CWPH	NNS	D	HI Standards – 2010	N/A	III	
b. Butterfly valves	TGB, CWPH	NNS	D	AWWA C504-2010	N/A	III	
c. Condenser tube cleaning system components	TGB	NNS	D	ASME B31.1-2010	N/A	III	
d. Circulating water pump lube water booster pumps	CWPH	NNS	D	HI Standards-2010	N/A	III	
e. [[Makeup pumps]]	Yard	NNS	D	HI Standards-2010	N/A	III	
f. [[Blowdown pumps]]	Yard	NNS	D	HI Standards-2010	N/A	III	
g. [[Cooling towers (including cooling tower fans)]]	Yard	NNS	D	ASME PTC 23-2003	N/A	III	
h. Piping and valves	TGB, CWPH, Yard	NNS	D	ASME B31.1-2010	N/A	III	

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks	
22. CY – Information Processing								
a. MCR, RSR workstation display device IFPD in safe shutdown area	AB	NNS	N/A	N/A	A	II	(3)(d)	03.02.02-5
b. TSC and ERF workstation display device IFPD in non-safe shutdown area	ABC PCB /EOF	NNS	N/A	N/A	N/A	III		03.02.02-5
c. Information processing device server and related equipment	AB	NNS	N/A	N/A	N/A	III		
d. Computer room engineering workstation	AB	NNS	N/A	N/A	N/A	III		
e. I&C equipment room engineering workstation	AB	NNS	N/A	N/A	A	II	(3)(d)	
f. Non-safety soft control (IFPD) Radwaste control room engineering workstation	ABC PCB	NNS	N/A	N/A	A N/A	III	(3)(d)	03.02.02-5
22a. DA - Alternate AC Gas Turbine Generator System								03.02.02-5
a. Gas turbine generator package including auxiliary subsystem	AAC GTGB	NNS	E	Manufacturer's standard	A	III	(3)(b)	
b. AAC diesel fuel oil tanks and day tanks	AAC GTGB	NNS	D	ASME Sec. VIII-2007 with 2008 addenda/ API-650-2007 with 2008 addenda	A	III	(3)(b)	
c. AAC diesel fuel oil transfer pump	AAC GTGB	NNS	D	HEI Standards - 2010	A	III	(3)(b)	
d. Non-safety-related piping and valves located at indoor	AAC GTGB	NNS	D	ASME B31.1-2010	A	III	(3)(b)	

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e. Non-safety-related piping and valves located at outdoor	YARD	NNS	D	ASME B31.1-2010	N/A	III	
23. DC – DC Distribution							
a. DC equipment necessary for safety-related function							
1) Safety-related battery chargers	AB	SC-3	N/A	IEEE 308-2001 IEEE 323-2003 IEEE 344-2004 IEEE 420-2001 IEEE 450-2010	Yes	I	
2) Safety-related batteries	AB	SC-3	N/A	IEEE 308-2001 IEEE 323-2003 IEEE 344-2004 IEEE 420-2001 IEEE 450-2010	Yes	I	

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks	
3) Safety-related DC control centers	AB	SC-3	N/A	IEEE 308-2001 IEEE 323-2003 IEEE 344-2004 IEEE 420-2001 IEEE 450-2010	Yes	I		
b. Non-safety-related DC equipment in safety-related areas								
1) Non-safety-related battery chargers	AB	NNS	N/A	N/A	A	II	(3)(d); (3)(e)	03.02.02-5
2) Non-safety-related batteries	AB	NNS	N/A	N/A	A	II	(3)(d); (3)(e)	03.02.02-5
3) Non-safety-related DC control centers (MC01M, MC01N)	AB	NNS	N/A	N/A	A	II	(3)(d); (3)(e)	03.02.02-5
c. DC equipment in AAC GTG building								
1) Non-safety-related battery chargers	AAC GTGB	NNS	N/A	N/A	A	III	(3)(b); (3)(e)	03.02.02-5
2) Non-safety-related batteries	AAC GTGB	NNS	N/A	N/A	A	III	(3)(b); (3)(e)	03.02.02-5
3) Non-safety-related DC control centers	AAC GTGB	NNS	N/A	N/A	A	III	(3)(b); (3)(e)	03.02.02-5

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
d. Others							
1) Non-safety-related battery chargers	TGB, RCBCPB	NNS	N/A	N/A	N/A	III	
2) Non-safety-related batteries	TGB, RCBCPB	NNS	N/A	N/A	N/A	III	
3) Non-safety-related DC control centers	TGB, RCBCPB	NNS	N/A	N/A	N/A	III	
24. DE – Radioactive Drain							
a. Exposed piping and components in safety-related areas	AB	NNS	D	ASME B31.1 - 2010 HI Standards - 2010	A	II	(3)(d)
b. Embedded piping and components necessary for flood protection in safety-related areas	AB	NNS	D	ASME B31.1 - 2010 HI Standards - 2010	A	II	(3)(d)
c. Piping and components necessary for flood protection in non-safety-related areas	AB	NNS	D	ASME B31.1 - 2010 HI Standards - 2010	A	II	(3)(d)
d. Containment isolation valves and associated piping	RCB, AB	SC-2	B	ASME Sec. III NC -2007 with 2008 addenda	Yes	I	
e. Flood alarm loops of ESF pump rooms and elevation 55 ft 0 in of each quadrant wall	AB	SC-3	C	ASME Sec. III ND - 2007 with 2008 addenda	Yes	I	
f. Reactor containment bldg. drain sump pump	RCB	NNS	D	HI Standards - 2010	A	II	(3)(d)
g. ICI cavity sump pump	RCB	NNS	D	HI Standards - 2010	A	II	(3)(d)

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
h. Aux. bldg. floor drain sump pump	AB	NNS	D	HI Standards - 2010	A	II	(3)(d)
i. Aux. bldg. equipment drain sump pump	AB	NNS	D	HI Standards - 2010	A	II	(3)(d)
j. Safety injection pump room sump pump	AB	NNS	D	HI Standards - 2010	A	II	(3)(d)
k. Shutdown cooling pump room sump pump	AB	NNS	D	HI Standards - 2010	A	II	(3)(d)
l. Containment spray pump room sump pump	AB	NNS	D	HI Standards - 2010	A	II	(3)(d)
m. Aux. bldg. chemical drain sump pump	AB	NNS	D	HI Standards - 2010	A	II	(3)(d)
n. Compound bldg. normal sump pump	CPB	NNS	D	HI Standards - 2010	N/A	III	
o. Spent resin long term storage tank room sump pump	CPB	NNS	D	HI Standards - 2010	N/A	III	
p. Compound bldg. chemical drain sump pump	CPB	NNS	D	HI Standards - 2010	N/A	III	
q. RLS drain sump pump	CPB	NNS	D	HI Standards - 2010	N/A	III	
25. DG – Emergency Diesel Generator							
a. Fuel oil feed pumps	AB, EDGB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
b. Air receivers	AB, EDGB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
c. Heat exchangers	AB, EDGB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
d. Expansion tanks	AB, EDGB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
e. Combustion air intake and exhaust duct work	AB, EDGB	SC-3	G	DEMA – 1972	Yes	I	
f. Engine, engine-mounted components, and generator	AB, EDGB	SC-3	G	DEMA – 1972	Yes	I	
g. Starting air compressors, air dryer package, lube oil separator, lube oil/preheating water heat exchanger, HT water electric heater, preheating HT water pump, prelube oil pump and other non-safety-related equipment	AB, EDGB	NNS	D	ASME Sec. VIII-2007 with 2008 addenda ASME B31.1-2010	A	II	(3)(d)
h. Non-safety-related piping and equipment located at outdoor	AB, EDGB	NNS	D	ASME B31.1-2010	N/A	III	
26. DI – Display							
a. QIAS-N display	AB	NNS	N/A	N/A	A	I	
b. IPS display IFPD in safe shutdown area	AB	NNS	N/A	N/A	A	II	(3)(d)
c. IFPD in non-safe shutdown area	CPB, EOF	NNS	N/A	N/A	N/A	III	
27. DO – Diesel Fuel Oil Transfer							
a. Diesel fuel oil storage tanks	AB, EDGB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
b. Diesel fuel oil transfer pumps	AB, EDGB						
1) Pumps		SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	

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2) Motors		SC-3	N/A	IEEE-323-2003/344-2004/334-2006	Yes	I		03.02.02-5
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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
c. Diesel fuel oil day tanks	AB, EDGB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
d. Other safety-related components and piping	AB, EDGB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
e. Non-safety-related components and piping in safety-related areas	AB, EDGB	NNS	D	ASME B31.1-2010	A	II	(3)(d)
f. Others	AB, EDGB	NNS	D	N/A	N/A	III	
28. DP – Diverse Protection System (DPS)							(14)
a. DPS Cabinet	AB	NNS	N/A	IEEE 384-1992, IEEE 344-2004	A	II	(3)(a) (3)(d)
b. DPS-OM	AB	NNS	N/A	IEEE 384-1992, IEEE 344-2004	A	II	(3)(a) (3)(d)
29. ED – Non-radioactive equipment vent and drain							
a. Non-safety-related components and piping in safety-related areas	AB, CCWHXB, CPB, ESWB	NNS	D	ASME B31.1-2010	A	II	(3)(d)
b. Flood protection embedded components and piping in safety-related areas	AB, CCWHXB, CPB, ESWB	NNS	D	ASME B31.1-2010	A	II	(3)(d)
c. Flood protection components and piping in non-safety-related areas	TGB, FPWTB, CWPH	NNS	D	ASME B31.1-2010	A	II	(3)(d)
d. Others		NNS	D	ASME B31.1-2010	N/A	III	

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
30. EF – Engineered Safety Feature Actuation System	AB	SC-3	N/A	IEEE-323-2003 IEEE-344-2004 IEEE-379-2000 IEEE-603-1991 IEEE-7-4.3.2-2003	Yes	I	
31. EM – Seismic Monitoring	AB, RCB, CPB, CCWHXB	NNS	N/A	IEEE-344-2004	A	I	(9)
32. ER – Emergency Response Facility							
a. ERF in MCR and TSCTSC Console	AB	NNS	N/A	N/A	A	II	(3)(d), (5)
b. ERF Panels and displays in EOF	Outside of plant	NNS	N/A	N/A	N/A	III	
33. ET – Auxiliary Transformer							
a. Standby aux. transformers	Yard	NNS	N/A	N/A	A	III	(3)(e)
b. Unit aux. transformers	Yard	NNS	N/A	N/A	N/A	III	
34. FC – Spent Fuel Pool Cooling and Cleanup							
a. Spent fuel pool cooling heat exchangers	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
b. Spent fuel pool cooling pumps	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
c. Spent fuel pool cleanup pumps	AB	NNS	D	ASME Sec. VIII-2007 with 2008 addenda	A	II	(3)(d)
d. Spent fuel pool cleanup filters	AB	NNS	D	ASME Sec. VIII-2007 with 2008 addenda	A	II	(3)(d)

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
e. Spent fuel pool cleanup demineralizers	AB	NNS	D	ASME Sec. VIII-2007 with 2008 addenda	A	II	(3)(d)
f. Spent fuel pool demineralizer filters	AB	NNS	D	ASME Sec. VIII-2007 with 2008 addenda	A	II	(3)(d)
g. Valves and piping of cooling loop	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
h. Valves and piping of makeup water supply line and boric acid makeup line from V1208, V1210, V2001 and V2002 to cooling loop	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
i. Valves and piping of cleanup loop and connected line excluding the following j through l below:	AB, RCB	NNS	D	ASME B31.1-2010	A	II	(3)(d)
j. Valves and piping of boric acid makeup line from but excluding V2034 to cleanup loop	AB	NNS	D	ASME B31.1-2010	A	II	(3)(d)
k. Valves and piping of IRWST return line from but excluding V1217 to cleanup loop	AB	NNS	D	ASME B31.1-2010	A	II	(3)(d)
l. Valves and piping of containment isolation line including V1142, V1143, V1144, V1145	AB, RCB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
m. Valves and piping of spent fuel pool demineralized water makeup line	AB	NNS	D	ASME B31.1-2010	A	II	(3)(d)

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks	
n. Valves and piping of spent fuel pool external makeup and spray lines	AB	NNS	D	ASME B31.1-2010	A	I	(3)(b)	
35. FD – Fire Detection and Alarm								
a. Fire control panels in safety-related areas	AB	NNS	N/A	NFPA 72- 2010 2013, NFPA 70-2008	A	II	(3)(c)	03.02.02-5
b. Fire detector	ALL	NNS	N/A	NFPA 72- 2010 2013, NFPA 70-2008	N/A	III		03.02.02-5
c. Notification and control equipment	ALL	NNS	N/A	NFPA 72- 2010 2013, NFPA 70-2008	N/A	III		03.02.02-5
36. FH – Fuel Handling and Transfer								
a. New fuel storage racks	AB	NNS	N/A	ANS 57.3	Yes	I		
b. Spent fuel storage racks	AB	NNS	N/A	ANS 57.2	Yes	I		
c. Refueling machine	RCB	NNS	D	N/A	A	II	(3)(d)	
d. Spent fuel handling machine	AB	NNS	D	N/A	A	II	(3)(d)	
e. New fuel elevator	AB	NNS	D	N/A	A	II	(3)(d)	
f. Fuel transfer system								
1) Transfer carriage	RCB, AB	NNS	D	N/A	A	II	(3)(d)	
2) Upender	RCB, AB	NNS	D	N/A	A	II	(3)(d)	
3) Hydraulic power unit	RCB, AB	NNS	D	N/A	A	II	(3)(d)	
g. New fuel handling tool	AB	NNS	D	N/A	N/A	III		
h. Spent fuel handling tool	AB	NNS	D	N/A	N/A	III		
i. Fuel transfer tube valve and stand	AB	NNS	D	N/A	A	II	(3)(d)	

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
j. Fuel transfer tube	RCB, AB	NNS	D	N/A	A	II	(3)(d)
k. Refueling machine bridge rails and spent fuel handling machine bridge rails	RCB, AB	NNS	D	N/A	N/A	III	
l. CEA elevator	RCB	NNS	D	N/A	A	II	(3)(d)
m. CEA cutter	RCB	NNS	D	N/A	N/A	III	
n. CEA change platform	RCB	NNS	D	N/A	A	II	(3)(d)
o. Upper guide structure lifting rig	RCB	NNS	D	ASME Sec. III NF - 2007 with 2008 addenda	A	II	(3)(d)
p. Core barrel lifting rig	RCB	NNS	D	ASME Sec. III NF - 2007 with 2008 addenda	A	II	(3)(d)
q. Underwater television	RCB	NNS	N/A	N/A	N/A	III	
r. Refueling pool seal	RCB	NNS	D	N/A	A	II	(3)(d)
s. In-core instrumentation cutter	RCB	NNS	D	N/A	N/A	III	
t. Gripper operating tool	RCB	NNS	D	N/A	N/A	III	
u. CEA handling tool	RCB	NNS	D	N/A	N/A	III	
v. Refueling supervisory console	RCB	NNS	D	N/A	N/A	III	
w. Refueling simulator	AB	NNS	D	N/A	N/A	III	
x. ICI guide tube	RCB	SC-1	A	ASME Sec. III NB -2007 with 2008 addenda	Yes	I	
aa. ICI guide tube support	RCB	SC-1	A	ASME Sec. III NF -2007 with 2008 addenda	Yes	I	
ab. ICI insertion and removal tool	RCB	NNS	D	N/A	N/A	III	
ac. ICI sealing housing	RCB	SC-1	A	ASME Sec. III NB -2007 with 2008 addenda	Yes	I	

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
ad. ICI seal table	RCB	SC-1	A	ASME Sec. III NB -2007 with 2008 addenda	Yes	I	
ae. ICI holding frame	RCB	NNS	D	N/A	N/A	III	
af. Fuel transfer tube blind flange	RCB	SC-2	B	ASME Sec. III NE -2007 with 2008 addenda	Yes	I	
37. FI – Fixed In-core Detector Amplifier System (FIDAS)							
a. Cabinet	AB, RCB	NNS	N/A	N/A	A	II	(3)(d) (N-9)
38. FP – Fire Protection							
a. Containment isolation	AB, RCB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	YES	I	
b. Seismic Category I fire protection subsystem							
1) Subsystem Components							
(a) Seismic Category I fire pumps	AB	NNS	D	NFPA 20-2013	A	I	(3)(c)
(b) Seismic Category I fire water tanks	AB	NNS	D	AWWA D-100-2005 NFPA 22 - 2013	A	I	(3)(c)
(c) Others	AB	NNS	D/E	N/A Applicable UL/NFPA	A	I	(3)(c)
2) Subsystem fire protection piping	AB	NNS	D/E	NFPA 13-2013 ASME B31.1-2010	A	I	(3)(c)
3) Subsystem fire protection piping	AB	NNS	E	NFPA 13-2013	A	I	(3)(c)

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks	
c. Normal fire protection subsystem in safety-related areas								
1) Subsystem Components							(12)	03.02.02-5
(a) Fire control panel	ALL	NNS	N/A	UL/NFPA 20-2010	A	II	(3)(e) , (3)(d)	03.02.02-5
(b) Fire hydrant	Yard	NNS	E	NFPA 24-2013	A	II	(3)(e) (3)(d)	03.02.02-5
(c) Extinguisher	ALL	NNS	E	NFPA 10 -2013	A	II	(3)(e) (3)(d)	03.02.02-5
(d) Others	ALL	NNS	D/E	N/A Applicable UL/NFPA	A	II	(3)(e) (3)(d)	03.02.02-1
2) Subsystem fire protection piping	ALL	NNS	D/E	NFPA 13-2013 ASME B31.1-2010	A	II	(3)(e) , (12) (3)(d)	03.02.02-1
3) Subsystem fire protection piping	ALL	NNS	E	NFPA 13-2013	A	II	(3)(d)	
d. Normal fire protection subsystem in non-safety-related areas								
1) Subsystem components								
(a) Main fire pumps and jockey pump	FPWTB	NNS	E	NFPA 20-2013	A	III	(3)(e) (3)(e)	03.02.02-5
(b) Freshwater storage tanks	Yard	NNS	E	AWWA D-100-2005 NFPA 22-2013	A	III	(3)(e) (3)(e)	03.02.02-5
(c) Fire control panel	FPWTB	NNS	N/A	UL/NFPA 20-2013	A	III	(3)(e) (3)(e)	03.02.02-5
(d) Fire hydrant	Yard	NNS	E	NFPA 24-2013	A	III	(3)(e) (3)(e)	03.02.02-5
(e) Extinguisher	ALL	NNS	E	NFPA 10-2013	A	III	(3)(e) (3)(e)	03.02.02-5

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(f) Others	ALL	NNS	D /E	N/A Applicable UL/NFPA	A	III	(3)(e) (3)(e)	03.02.02-1
2) Subsystem fire protection piping		NNS	D/ E	NFPA 13-2013 ASME B31.1-2010	A	III	(3)(e) (3)(e)	03.02.02-1
3) Subsystem fire protection piping	ALL	NNS	E	NFPA 13-2013	A	II	(3)(d)	03.02.02-5

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
39. FW – Feedwater							
a. From the SG up to and including the MSVH penetration anchor	RCB, MSVH	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
b. Other piping	TGB	NNS	D	ASME B31.1-2010	N/A	III	
c. Feedwater pumps	TGB	NNS	D	HI Standards - 2010	N/A	III	
d. Feedwater booster pumps and motor	TGB	NNS	D	HI Standards - 2010	N/A	III	
e. Startup feedwater pump and motor	TGB	NNS	D	HI Standards - 2010	A	III	(3)(e)
f. Startup feedwater pump discharge check valve	TGB	NNS	D	ASME B31.1-2010	A	III	(3)(e)
g. Startup feedwater pump discharge isolation valve	TGB	NNS	D	ASME B31.1-2010	A	III	(3)(e)
h. Startup feedwater control valve	TGB	NNS	D	ASME B31.1-2010	A	III	(3)(e)
i. Feedwater heaters	TGB	NNS	D	ASME Sec. VIII – 2007 with 2008 addenda	N/A	III	
j. Other components	TGB	NNS	D	ASME Sec. VIII - 2007 with 2008 addenda	N/A	III	
40. GD – Grounding							
a. Grounding conductor	ALL	NNS	N/A	IEEE 80-2000 IEEE 665-1995	N/A	III	
b. Lightning protection equipment	ALL	NNS	N/A	IEEE 80-2000 IEEE 665-1995	N/A	III	

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
41. GP – Cathodic Protection							
a. Panels in safety-related areas	ESWB, CCWHXB	NNS	N/A	NACE SP 0169-2007 NACE SP 048-2008	A	II	(3)(d)
b. Others							
1) Anode	ALL	NNS	N/A	NACE SP 0169-2007 NACE SP 048-2008	N/A	III	
2) Reference electrode	ALL	NNS	N/A	NACE SP 0169-2007 NACE SP 048-2008	N/A	III	
3) Panels in other areas	ALL	NNS	N/A	N/A	N/A	III	
42. GW – Gaseous Radwaste							
a. Containment isolation	RCB, AB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
b. Piping and components containing radioactive material	CPB	NNS	D	ASME Sec. VIII - 2007 ASME B31.3 - 2010	A Note (4)	H Note (4)	(3)(d)
c. Piping and components not related to radioactive material	CPB	NNS	D	N/A	N/A	III	Not containing radioactive material
d. Header drain tank	CPB	NNS	D	ASME Sec. VIII – 2007	A Note (4)	H Note (4)	(3)(d)
e. Charcoal guard bed	CPB	NNS	D	ASME Sec. VIII – 2007	A Note (4)	H Note (4)	(3)(d)
f. Charcoal delay bed	CPB	NNS	D	ASME Sec. VIII – 2007	A Note (4)	H Note (4)	(3)(d)
g. HEPA filter	CPB	NNS	D	ASME Sec. VIII – 2007	A	H	(3)(d)

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					Note (4)	Note (4)	
h. Waste gas dryer	CPB	NNS	D	ASME Sec. VIII – 2007	A Note (4)	H Note (4)	(3)(d)

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
43. HC – Hoist Crane (All except Fuel Handling and Transfer System)							
a. Reactor containment building polar crane	RCB	NNS	N/A	N/A	A	II	(3)(d), (11), (13)
b. Fuel handling area overhead crane	AB	NNS	N/A	N/A	A	II	(3)(d), (11)
c. Cranes and/or hoists in safety-related areas	AB, CPB	NNS	N/A	N/A	A	II	(3)(d), (11)
d. Others	AB, CPB	NNS	N/A	N/A	N/A	III	
44. HD – Heater Drain							
a. Feedwater heater drain control valves	TGB	NNS	D	ASME B31.1-2010	N/A	III	
b. Others	TGB	NNS	D	N/A	N/A	III	
45. HG – Containment Hydrogen Control							
a. Passive autocatalytic recombiners (PARs)	RCB	NNS	E	Manufacturer standard	A	I	(3)(e)
b. Hydrogen ignitors	RCB	NNS	N/A	Manufacturer standard	A	I	(3)(e)

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
46. HT – Heat Tracing							
a. Equipment in safety-related areas							
1) Heat tracing panel	AB	NNS	N/A	IEEE 622-1987, IEEE 515-2004, IEEE 622A-1986, IEEE 622B-1988	A	II	(3)(d)
2) Distribution transformer	AB	NNS	N/A	N/A	A	II	(3)(d)
b. Others	TGB, CPB, Yard	NNS	N/A	IEEE 622-1987, IEEE 515-2004, IEEE 622A-1986, IEEE 622B-1988	N/A	III	
47. IA – Instrument Air							
a. Containment isolation isolation valves and associated piping	AB, RCB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
b. Non-safety-related piping and equipment in safety-related areas	AB	NNS	D	ASME B31.1-2010	A	II	(3)(d)
c. Air compressor and auxiliaries	TGB	NNS	D	ISA S7.0.01-1996 N/A	N/A	III	(3)(e)
d. Piping in non-safety-related areas	TGB	NNS	D	N/A	N/A	III	
e. Others	TGB	NNS	D	N/A	N/A	III	

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
48. IC – In-core Monitoring							
a. In-core instrument	RCB	SC-1	A	IEEE-323-2003 IEEE-344-2004	Yes	I	Seal plug only
b. Cabling and cable tray system from seal table to pool-wall junction panel	RCB, AB	SC-3	C	IEEE-323-2003 IEEE-344-2004	Yes	I	
c. Cables and cable tray system from pool wall junction panel to containment penetration	RCB, AB	SC-3	N/A	IEEE-383-2003	Yes	I	
d. Cables and cable tray system from containment penetration to FIDAS cabinet	RCB, AB	NNS	N/A	IEEE-386-1992	Yes	II	
e. Cables and cable tray system from containment penetration to QIAS-P cabinet	RCB, AB	SC-3	N/A	IEEE-383-2003	Yes	I	
49. IP – Instrument and Control Power (Including Inverters)							
a. Safety inverter Safety-related inverters, regulating transformers, automatic transfer switches, manual transfer switches, and 120V AC distribution panels	AB	SC-3	N/A	IEEE 308-2001 IEEE 323-2003 IEEE 344-2004 IEEE 420- 2013 2001	Yes	I	
b. Non-safety inverter Safety-related inverters, regulating transformers, automatic transfer switches, manual transfer switches, and 120V AC distribution panels	AB	NNS	N/A	N/A	A	II	(3)(d)
c. Non-safety-related UPS	AAC GTGB	NNS	N/A	N/A	A	III	(3)(b)

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d. Non-safety-related UPS	AB	NNS	N/A	N/A	A	II	(3)(d)	
e. Non-safety-related UPS	AB ,CPB	NNS	N/A	N/A	N/A	II ,III		03.02.02-1

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
50. IS – Security							
a. Security CCTV subconsole and color graphic console	AB	NNS	N/A	10 CFR 73.55-2010 IEEE 692-2010	A	II	(3)(d), (6)
b. Other security equipment	ALL	NNS	N/A	N/A	N/A	III	(6)
51. IW – In-Containment Refueling Water Storage							
a. In-containment refueling water storage tanks	RCB	SC-3	G	ACI 349-1997, ASME Sec. III CC-2001 with 2003 Addenda	Yes	I	03.02.02-5
b. Holdup volume tank	RCB	SC-3	G	ACI 349-1997, ASME Sec. III CC-2001 with 2003 Addenda	Yes	I	03.02.02-5
c. Trisodium phosphate baskets	RCB	SC-3	N/A	ASME Sec. III CC-2001 with 2003 Addenda AISC N690-1994&2004 (Supplement No.2)	Yes	I	03.02.02-5
d. IRWST sump strainers	RCB	SC-3	G	AISC N690-1994&2004 (Supplement No.2)	Yes	I	
e. Swing panels	RCB	SC-3	G	ASME AG-1-2009	Yes	I	
f. In-containment refueling water storage tank spillway	RCB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
g. Holdup volume tank flooding lines including the power operated valves V001 and 002 (MOV)	RCB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
h. Reactor cavity flooding lines including the power operated valves V003 and 004 (MOV)	RCB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
i. IRWST pressure/temperature instrument penetration piping including isolation valves	RCB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
j. IRWST level instrument penetration piping including isolation valves	AB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
k. HVT level instrument penetration piping including isolation valves	AB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
l. Reactor cavity level instrument penetration piping including isolation valves	AB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
m. Containment penetration piping of CVCS BAMP suction line upstream including isolation and relief valves	AB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
52. LD – Leak Detection							
a. ESF pump compartment, CCW pump compartment and flood level at floor of each quadrant	RCB, AB, CCWHXB	SC-3	N/A	IEEE-323-2003 IEEE-344-2004	Yes	I	(16)
b. Containment air radiation monitors	RCB	SC-3	N/A	IEEE-323-2003 IEEE-344-2004	Yes	I	(16)
c. Others in safe shutdown area	AB	NNS	N/A	IEEE-323-2003 IEEE-344-2004	A	II	(3)(d) (16)
d. Others in non-safe shutdown area	AB	NNS	N/A	IEEE-323-2003 IEEE-344-2004	N/A	III	(16)

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
53. LL – Lighting							
a. Equipment in safety-related area							
1) Lighting fixture	MCR, FHA, RCB	NNS	N/A	NFPA 101- 2009 2012	A	II	(3)(d)
2) Lighting transformer	RCB, AB, CCWHXB, ESWB	NNS	N/A	NFPA 101- 2009 2012	A	II	(3)(d)
3) Lighting distribution panel	RCB, AB, CCWHXB, ESWB	NNS	N/A	NFPA 101- 2009 2012	A	II	(3)(d)
b. Equipment in other areas							
	ALL	NNS	N/A	N/A	N/A	III	
54. LP – Large Display Panel	AB	NNS	N/A	N/A	A	II	(3)(d)
55. MP – Main Power							
a. Protective relays for generator and transformer	AB	NNS	N/A	N/A	A	II	(3)(d)
b. Generator excitation system, main transformer, generator circuit breaker, isolated phase bus and related protection facility	TGB Yard	NNS	N/A	N/A	N/A	III	
c. Others	TGB	NNS	N/A	N/A	N/A	III	

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks	
56. MS – Main Steam								
a. Piping and components from SG up to and including the MSVH penetration anchor wall	RCB, MSVH	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I		
b. Piping and components from outlet of MSADVs and MSSVs	AB	NNS	D	ASME B31.1-2010	A	II	(3)(d)	
c. Piping inside main steam pipe enclosure	MS Pipe Enclosure	NNS	D	ASME B31.1-2010	A	II	(3)(d)	
d. Components inside turbine generator building from outside main steam pipe enclosure	TGB	NNS	D	ASME B31.1-2010	N/A	III		
e. Other piping	TGB	NNS	D	ASME B31.1-2010	N/A	III		
57. NB – 4.16 kV Non-Class 1E Power								
a. 4.16 kV switchgears (SW01M) in aux. building	AB	NNS	N/A	N/A	A	II	(3)(d), (3)(e)	03.02.02-5
b. 4.16 kV switchgear (SW02N) in TG building	TGB	NNS	N/A	N/A	A	III	(3)(e)	
c. Switchgear 4.16kV Switchgear (SW03N) in AAC GTG building	AAC GTGB	NNS	N/A	N/A	A	III	(3)(b), (3)(e)	03.02.02-5
d. 4.16 kV switchgear (SW02M) in TG building	TGB	NNS	N/A	N/A	N/A	III		
58. NC – NSSS process control								
a. Feedwater control signal processing and processor	AB	NNS	N/A	N/A	N/A	II	(3)(d)	03.02.01-4
b. Steam bypass control signal processing and processor	AB	NNS	N/A	N/A	N/A	II	(3)(d)	03.02.01-4

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks	
c. PZR level control signal processing and processor	AB	NNS	N/A	N/A	N/A	II	(3)(d)	03.02.01-4
d. PZR pressure control signal processing and processor	AB	NNS	N/A	N/A	N/A	II	(3)(d)	03.02.01-4
e. PZR heater proportional power controller	AB	NNS	N/A	N/A	N/A	III		
f. CVCS – signal processing and processor	AB	NNS	N/A	N/A	N/A	II	(3)(d)	03.02.01-4
g. Boron dilution alarm system – signal conditional and processing electronics	AB	NNS	N/A	N/A	N/A	II	(3)(d)	03.02.01-4
59. NG – 480V Non-1E Load Center								
a. 480V non-1E load centers and transformers in safety-related areas	AB	NNS	N/A	N/A	A	II	(3)(d)	
b. 480V non-1E load center and transformer load centers (LC05N, LC10M) and transformers (TR05N, TR10M) in AAC GTG building	AAC GTGB	NNS	N/A	N/A	A	III	(3)(b)	03.02.02-5
c. 480V non-1E load center and transformer (LC05N/TR05N) in TG building	TGB	NNS	N/A	N/A	A	III	(3)(e)	
d. 480V non-1E load centers and transformers in other areas	TGB CPB Pump House	NNS	N/A	N/A	N/A	III		

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
60. NH – 480V non-1E MCC and low voltage							
a. 480V MCCs, 120/208V distribution panels and XFMRs in safety-related areas	AB	NNS	N/A	N/A	A	II	(3)(d)
b. 480V MCC (MC03M), 120/208V distribution panel and XFMR in Aux. Building	AB	NNS	N/A	N/A	A	III	(3)(e) 03.02.02-5
b c. 480V MCC (MC20N), 120/208V distribution panel and XFMR (MC20N) in TG building	TGB	NNS	N/A	N/A	A	III	(3)(e) 03.02.02-5
e d. 480V MCCs, 120/208V distribution panels and XFMRs in AAC GTG building	AAC GTGB	NNS	N/A	N/A	A	III	(3)(b) 03.02.02-5
e e. 480V MCCs, 120/208V distribution panels and XFMRs in other areas	TGB CPB Pump House	NNS	N/A	N/A	N/A	III	
61. NI – NSSS Integrity Monitoring							
a. Alarm unit cabinet (AUC) and field components	RCB, AB	NNS	N/A	IEEE-344-2004 IEEE-383-2003	A	II	(3)(d)
b. Analysis computer console (ACC)	AB	NNS	N/A	N/A	N/A	III	
c. Acoustic leak monitoring (ALMS)	RCB, AB	NNS	N/A	N/A	A	II	(3)(d)
d. Internal vibration monitoring (IVMS)	RCB, AB	NNS	N/A	ASME OM-S/G Part 5-2007	A	II	(3)(d)
e. Loose parts monitoring (LPMS)	RCB, AB	NNS	N/A	ASME OM-S/G Part 12-2007	A	II	(3)(d)
f. RCP vibration monitoring	RCB, AB	NNS	N/A	ASME OM-S/G Part 14-	A	II	(3)(d)

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
62. NP – 13.8 kV Non-IE Power							
a. 13.8 kV switchgears in TG building	TGB	NNS	N/A	N/A	A	III	(3)(e)
b. 13.8 kV switchgears (SW02N) in aux. building	AB	NNS	N/A	N/A	A	II	(3)(d)
63. NR – Ex-core Neutron Flux Monitoring							
a. Startup/control channel	RCB, AB	NNS	N/A	N/A	N/A	II	(3)(d)
b. Safety channel	RCB, AB	SC-3	N/A	IEEE-603-1991 IEEE-323-2003 IEEE-344-2004	Yes	I	
64. PD – Diverse Indication System (DIS)							
a. DIS cabinet	AB	NNS	N/A	IEEE 344-2004 IEEE 384-1992	A	III II	Diversity reqs. (3)(d)
b. DIS display (FPD) & switch	AB	NNS	N/A	IEEE 344-2004	A	II	Diversity reqs. (3)(d)
65. PE – Engineered Safety Features-Component Control							
a. Safety-related component control cabinets and field-mounted instruments							
1) Group controller cabinet and related instruments	AB	SC-3	N/A	IEEE-323-2003 IEEE-344-2004 IEEE-379-2000 IEEE-603-1991 IEEE-7-4.3.2-2003	Yes	I	

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
2) Field loop controller cabinet	AB	SC-3	N/A	IEEE-323-2003 IEEE-344-2004 IEEE-379-2000 IEEE-603-1991 IEEE-7-4.3.2-2003	Yes	I	
3) Safety soft control (ESCM)	AB	SC-3	N/A	IEEE-323-2003 IEEE-344-2004 IEEE-379-2000 IEEE-603-1991 IEEE-7-4.3.2-2003	Yes	I	
b. Safety related instrument sensing line (all applications) Safety-Related Instrument Sensing Line	RCB, AB, CCWHXB	SC-1/ SC-2/ SC-3	A/B/C	IEEE 323-2003 IEEE 344-2004 IEEE 379-2000 IEEE 603-1991 IEEE 7-4.3.2-2003	Yes	I	03.02.02-5
1) Safety-Related Instrument Sensing Line for SC-1	RCB, AB	SC-1	A	ANSI/ISA-S67.02.01	Yes	I	03.02.02-1
2) Safety-Related Instrument Sensing Line for SC-2	RCB, AB	SC-2	B				
3) Safety-Related Instrument Sensing Line for SC-3	RCB, AB, Yard, CCWHXB, ESWB, CWPB	SC-3	C				
66. PF – 4.16 kV Class 1E Power							
a. 4.16 kV switchgear	AB	SC-3	N/A	IEEE 308-2001, IEEE 323-2003, IEEE 344-2004, IEEE 420- 2013 2001	Yes	I	03.02.02-5

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
67. PG – 480V Class 1E Load Center							
a. 480V LCs and LC XFMRs	AB	SC-3	N/A	IEEE 308-2001, IEEE 323-2003, IEEE 344-2004, IEEE 420- 2013 2001	Yes	I	
68. PH – 480V Class 1E MCC and Low Voltage							
a. 480V MCCs 120/208V distribution panels and XFMRs	AB Pump House EDGB	SC-3	N/A	IEEE 308-2001, IEEE 323-2003, IEEE 344-2004, IEEE 420- 2013 2001	Yes	I	
69. PM – MCR							
a. Control console Operator console (RO, TO, EO, SS, STA)							
1) Frame	AB	SC-3	N/A	IEEE-323-2003 IEEE-344-2004 IEEE-420-2013 IEEE-603-1991	Yes	I	
2) Information FPD IFPD	AB	NNS	N/A	N/A	A	II	(3)(d)
3) ESF CCS soft control module ESCM	AB	SC-3	N/A	IEEE-603-1991 IEEE-323-2003 IEEE-344-2004 IEEE-420-2013	Yes	I	

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
5) Non-1E switch	AB	NNS	N/A	N/A	A	II	(3)(d)
6) QIAS-N FPD	AB	NNS	N/A	N/A	A	I	
b. Monitoring Console Meetingroom Workstation							
1) Information FPD IFPD	AB	NNS	N/A	N/A	N/A A	III I	(3)(d)
c. Safety Console							
1) Frame	AB	SC-3	N/A	IEEE-323-2003 IEEE-344-2004 IEEE-379-2000 IEEE-420-2013 IEEE-603-1991	Yes	I	
2) Class 1E switch	AB	SC-3	N/A	IEEE-323-2003 IEEE-344-2004 IEEE-379-2000 IEEE-420-2013 IEEE-603-1991	Yes	I	
3) Non-1E switch	AB	NNS	N/A	N/A	A	II	(3)(d)
4) Mini LDP (including QIAS-N)	AB	NNS	N/A	N/A	A	I	
5) Operator module	AB	SC-3	N/A	IEEE-323-2003 IEEE-344-2004 IEEE-379-2000 IEEE-420-2013 IEEE-603-1991 IEEE-7-4.3.2-2003	Yes	I	

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
6) QIAS-P FPD	AB	SC-3	N/A	IEEE-323-2003 IEEE-344-2004 IEEE-379-2000 IEEE-383-2003 IEEE-497-2002 IEEE-603-1991 IEEE-7-4.3.2-2003	Yes	I	
7) Diversity Indication System FPD	AB	NNS	N/A	N/A	A	II	(3)(d)
8) Mark-VI FPD	AB	NNS	N/A	N/A	A	II	(3)(d)
9) ESF-CCS soft control module ESCM	AB	SC-3	N/A	IEEE-603-1991 IEEE-323-2003 IEEE-344-2004 IEEE-420-2013	Yes	I	
70. PN – NSSS Process Instrumentation							
a. Safety related	RCB, AB	SC-3	N/A	IEEE-603-1991 IEEE-323-2003 IEEE-344-2004	Yes	I	
b. Non-safety related	RCB, AB	NNS	N/A	N/A	A	II/III	(3)(d)
71. PO – Process Component Control							
a. Non-safety-related component control cabinet and local installation component							
1) Process group controller cabinet and related components	AB, TB	NNS	N/A	IEEE-383-2003 ⁽¹⁷⁾ IEEE-420-2001 ⁽¹⁷⁾ IEEE-7-4.3.2-2003 ⁽¹⁷⁾	A	II	(3)(d)

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks	
2) Process loop controller cabinet and related components	AB, CPB, TB, FPWTB, CWPB, AAC, GTGB, SWYD	NNS	N/A	IEEE-383-2003 ⁽¹⁷⁾ IEEE-420-2001 ⁽¹⁷⁾ IEEE-7-4.3.2-2003 ⁽¹⁷⁾	A	II	(3)(d)	
3) Engineering workstation	AB	NNS	N/A	N/A	A	II	(3)(d)	03.02.02-5
b. Non-safety-related component instrument sensing lines								03.02.02-5
1) In safety related area Non-safety instrument sensing line in safety-related area	AB, RCB, TGB, CPB, ACC, GTGB, ESWB, CWPB, CCWHXB, Yard	NNS	D	ISA 67.02.01-1999 IEC 61000-4 series IEEE 383-2003 N/A	A	II	(3)(d)	03.02.02-5
2) Reliability related non-safety instrument sensing line in non-safety-related area	AB, TGB, CPB, FPWTB, RCB, CWPB, Yard	NNS	D	N/A	A	III	(3)(e)	03.02.02-5
2) In non safety related areas 3) Other non-safety instrument sensing line in non-safety-related area	AB, TGB, CCWHXB, RCB, CPB, CWPB, FPWTB, ESWB,	NNS	D	IEC 61000-4 series N/A	N/A	III		03.02.02-5

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	AAC GTGB, Yard							
72. PP – Post-Accident Monitoring								
a. Instrument for Type A, B, C variables	RCB, AB	SC-3	N/A	ISA-S67.02.01 ICEA T-27-581	Yes	I	(7)	03.02.02-5
b. Instrument for Type D, E variables	RCB, AB	NNS	N/A	ISA-S67.02.01 ICEA T-27-581	A	H	(3)(d), (7)	03.02.02-5
a. Instrumentation for Type A, B, and C variables	RCB, AB	SC-3	N/A	IEEE 497-2002	Yes	I	(7)	03.02.02-5
b. Instrumentation for Type D variables	RCB, AB, CCWHXB EDGB	SC-3	N/A	IEEE 497-2002	Yes	I	(7)	03.02.02-5
c. Instrumentation for Type D variables	RCB	NNS	N/A	IEEE 497-2002	A	II	(3)(d), (7)	03.02.02-5
d. Instrumentation for Type E variables	AB, CPB, TGB	NNS	N/A	IEEE 497-2002	A	II	(3)(d), (7)	03.02.02-5
e. Instrumentation for Type E variables	Yard	NNS	N/A	IEEE 497-2002	N/A	III	(7)	03.02.02-5
73. PR – Radiation Monitoring								
a. NSSS RMS								
1) PRMS – sampler/detector unit	RCB, AB	NNS	N/A	N/A	A	II	(3)(d)	03.02.01-4

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks	
2) PRMS – signal conditional and processing electronics	RCB, AB	NNS	N/A	N/A	A	III		
3) WRBS – sampler/detector unit	RCB, AB	NNS	N/A	N/A	A	II	(3)(d)	03.02.01-4
4) WRBS – signal conditional and processing electronics	RCB, AB	NNS	N/A	N/A	A	III		
5) GSERMS – sampler/detector unit	RCB, AB	NNS	N/A	N/A	A	II	(3)(d)	03.02.01-4
6) GSERMS – signal conditional and processing electronics	RCB, AB	NNS	N/A	N/A	A	III		
b. BOP RMS								
1) Safety-related equipment	AB	SC-3	G	IEEE 497-2002 IEEE 603-1991	Yes	I		
2) Non-safety-related equipment in safety-related areas and TSC	AB	NNS	D /ED	N/A ASME B31.1-2010	A	II	(3)(d)	03.02.02-1
3) Equipment in non-safety-related areas required to provide reasonable assurance that areas required to ensure radioactivity releases are within limits	AB TGB, CPB	NNS	D /ED	N/A ASME B31.1-2010	N/A	III		03.02.02-1
4) Containment isolation	AB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I		
5) Others	AB C CWH XB, FPWTB	NNS	D	N/A ASME B31.1-2010	N/A	III		03.02.02-5

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
74. PS – Process Sampling							
a. SG sampling in containment Steam generator sample lines located in the reactor containment building including containment isolation	RCB, AB, CPB	SC-2	B	IEEE 323-2003 IEEE 344-2004 IEEE 382-2003 ANSI/ISA-S67.02.01	N/A	I	
b. Non-safety-related sampling in sample lines in the safety-related areas	AB	NNS	D	IEEE 323-2003 IEEE 344-2004 IEEE 382-2003 N/A	A	II	(3)(d)
c. Equipment contacting with radioactive sample in non-safety-related areas	CPB	NNS	D	IEEE 323-2003 IEEE 344-2004 IEEE 382-2003 N/A	N/A	III	
d. Analyzer and instrumentation equipment	AB, CPB, TGB	NNS	N/A	IEEE 323-2003 IEEE 344-2004 IEEE 382-2003 N/A	N/A	III	
e. Others	AB, TGB	NNS	D	IEEE 323-2003 IEEE 344-2004 IEEE 382-2003 N/A	N/A	III	
75. PW – Power Control System							
a. Reactor regulating system – signal conditional and processing electronics	AB	NNS	N/A	N/A	N/A	II	(3)(d)
b. Digital rod control system – signal conditional and processing electronics	AB	NNS	N/A	N/A	N/A	II	(3)(d)
c. Digital rod control system power control electronics	AB	NNS	N/A	N/A	N/A	III	

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
d. Reactor power cutback system – signal conditional and processing electronics	AB	NNS	N/A	N/A	N/A	II	(3)(d)
e. DRCS remote I/O cabinet	AB	NNS	N/A	N/A	N/A	I	(N-9)
76. PX – Primary Sampling							
a. RCS hot leg sample line CIV inside Containment	RCB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
b. RCS hot leg sample line CIV outside Containment	AB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
c. RCS PZR surge sample line CIV inside containment	RCB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
d. RCS PZR surge sample line CIV outside containment	AB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
e. RCS PZR Steam Space Sample Line CIV inside Containment	RCB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
f. RCS PZR steam space sample Line CIV outside containment	AB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
g. SI pumps miniflow sample line isolation valves	AB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
h. CS pump miniflow sample line isolation valves	AB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
i. SC pump miniflow sample line isolation valves	AB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
j. SI tank sample line CIV inside containment	RCB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
k. SI tank sample line CIV outside	AB	SC-2	B	ASME Sec. III NC-2007	Yes	I	

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containment				with 2008 addenda			
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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
l. SI tank sample line isolation valves	RCB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
m. Containment air sample line CIV inside containment	RCB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
n. Containment air sample line CIV outside containment	AB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
o. Containment air sample return line CIV outside containment	AB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
p. Containment air sample return line CIV inside containment	RCB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
q. PASS sample return line CIV inside containment	RCB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
r. PASS sample return line CIV outside containment	AB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
s. SC and CS pumps miniflow line sampling piping and valves	AB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
t. CVCS purification filter sampling piping and valves	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
u. CVCS ion exchanger sampling piping and valves	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
v. Sampling return piping and valve to VCT	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
w. Air sample/return line in containment building, portion of post-accident sample return line and sample line & component in aux. building	AB	NNS	D	ASME B31.1-2010	A	II	(3)(d)

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
x. Normal primary sample cooler rack	CPB	NNS	D	ASME B31.1-2010	N/A	III	
y. Normal primary sample sink	CPB	NNS	D	ASME B31.1-2010	N/A	III	
z. Post-accident primary sample cooler rack	AB	NNS	D	ASME B31.1-2010	N/A	III	
aa. Post-accident primary sample sink	AB	NNS	D	ASME B31.1-2010	N/A	III	
bb. Primary off-gas sample pump	AB	NNS	D	ASME B31.1-2010	N/A	III	
77. QN – Qualified Indication and Alarm – Non-Safety (QIAS-N)							
a. QIAS-N display device (QIAS-N FPD, mini-LDP and SODP)	AB	NNS	N/A	IEEE 384-1992	A	I	
b. QIAS-N processing device and related equipment	AB	NNS	N/A	IEEE 384-1992	A	I	
78. QP – Qualified Indication and Alarm – P(QIAS-P)							
a. QIAS-P display		SC-3	N/A	IEEE-323-2003 IEEE-344-2004 IEEE-379-2000 IEEE-383-2003 IEEE-497-2002 IEEE-603-1991 IEEE-7-4.3.2-2003	Yes	I	
b. QIAS-P processing controller (including ICCMS)		SC-3	N/A		Yes	I	(7)
c. HJTC instrumentation flange assembly		SC-1	A		Yes	I	
d. Heated junction thermocouple probe assembly		SC-1/ SC-3	A/C		Yes	I	SC-3: Seal plug

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
79. RC – Reactor Coolant							
a. Reactor vessel	RCB	SC-1	A	ASME Sec. III NB-2007 with 2008 addenda	Yes	I	
b. SG (primary/secondary)	RCB	SC-1/ SC-2	A/B	ASME Sec. III NB-2007 with 2008 addenda ASME Sec. III NC-2007 with 2008 addenda	Yes	I	(N-1)
c. PZR	RCB	SC-1	A	ASME Sec. III NB-2007 with 2008 addenda	Yes	I	
d. RCP	RCB	SC-1	A	ASME Sec. III NB-2007 with 2008 addenda	Yes	I	(N-3, 4)
e. POSRV							(N-8)
1) Main valves	RCB	SC-1	A	ASME Sec. III NB-2007 with 2008 addenda	Yes	I	
2) Spring-loaded pilot valves	RCB	SC-1	A	ASME Sec. III NB-2007 with 2008 addenda	Yes	I	
3) Double motor-operated pilot valves	RCB	SC-1	A	ASME Sec. III NB-2007 with 2008 addenda	Yes	I	
4) Motor-operated isolation valves	RCB	SC-1	A	ASME Sec. III NB-2007 with 2008 addenda	Yes	I	
5) Manual isolation valves	RCB	SC-1	A	ASME Sec. III NB-2007 with 2008 addenda	Yes	I	
f. Sparger	RCB	SC-3	C	ASME Sec. III ND	Yes	I	

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
g. POSRV piping	RCB	SC-3/ NNS	C/D	ASME Sec. III ND-2007 with 2008 addenda /ASME B31.1-2007 with 2008, 2009 addenda	Yes/NA	I/II	
h. Piping							
1) Reactor coolant piping	RCB	SC-1	A	ASME Sec. III NB-2007 with 2008 addenda	Yes	I	
2) Pressurizer surge line piping	RCB	SC-1	A	ASME Sec. III NB-2007 with 2008 addenda	Yes	I	
3) Pressurizer spray line piping	RCB	SC-1	A	ASME Sec. III NB-2007 with 2008 addenda	Yes	I	
4) Upstream of flow-restricting devices	RCB	SC-1	A	ASME Sec. III NB-2007 with 2008 addenda	Yes	I	(N-5)
5) Downstream of flow-restricting devices	RCB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	(N-6)
i. Integrated head assembly							
1) IHA seismic support system	RCB	SC-1	A	ASME Sec. III, NF -2007 with 2008 addenda	Yes	I	
2) RCGVS flange support	RCB	SC-1	A	ASME Sec. III, NF -2007 with 2008 addenda	Yes	I	
3) Main columns and cooling shroud shells	RCB	SC-3	C	ASME Sec. III, NF -2007 with 2008 addenda	Yes	I	
4) Upper air plenum	RCB	NNS	D	ASME Sec. III, NF -2007 with 2008 addenda	A	II	(3)(d)
6) POSRV discharge piping upstream of 3-way valves	RCB	NNS	D	ASME B31.1-2010	N/A	II	03.02.01-5
7) POSRV discharge piping downstream of 3-way valves	RCB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	03.02.01-5

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4) 3-way valves of POSRV discharge piping	RCB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	03.02.01-5
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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
j. Core support structures	RCB	SC-3	C	ASME III- NG -2007 with 2008 addenda	Yes	I	(N-2)
k. Valves							
1) Pressurizer spray control valves	RCB	SC-1	A	ASME Sec. III NB-2007 with 2008 addenda	Yes	I	
2) Pressurizer spray isolation valves	RCB	SC-1	A	ASME Sec. III NB-2007 with 2008 addenda	Yes	I	
3) Downstream of flow restricting devices	RCB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
l. Discharge piping vacuum breaker	RCB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
m. RCP lube oil collection tank	RCB	NNS	D	ASME Sec. VIII-2007 with 2008 addenda	N/A	II	
80. RG – Reactor Coolant Gas Vent							
a. Pressurizer gas vent piping upstream of and including the vent isolation valves V410 through 413	RCB	SC-1	A	ASME Sec. III NB-2007 with 2008 addenda	Yes	I	
b. Reactor vessel upper head gas vent piping upstream of and including the vent isolation valves V414 through 417	RCB	SC-1	A	ASME Sec. III NB-2007 with 2008 addenda	Yes	I	
c. RCGVS gas vent piping to and including the vent isolation valves V412, 413, 416, 417 from downstream of the vent isolation valves V418, 419, 420	RCB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
d. RCGVS gas vent piping from downstream of the vent isolation valves V418 to RDT	RCB	NNS	D	ASME B 31.1-2010	A	II	(3)(d)
e. RCGVS gas vent piping from downstream of the vent isolation valves V419, 420 to the IRWST anchor wall	RCB	NNS	D	ASME B 31.1-2010	A	II	(3)(d)
f. RCGVS gas vent piping from downstream of the IRWST anchor wall to the end point of RCGVS sparger	RCB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
81. RP – Reactor Protective							
a. PPS (plant protection system)	AB	SC-3	N/A	IEEE-323-2003 IEEE-344-2004 IEEE-603-1991 IEEE-7-4.3.2-2003, ASME NQA-1-2008 IEC 61000-4-2-1992	Yes	I	
b. MTP (maintenance test panel)	AB	SC-3	N/A	IEEE-323-2003 IEEE-344-2004 IEEE-603-1991 IEEE-7-4.3.2-2003, ASME NQA-1-2008 IEC 61000-4-2-1992	Yes	I	
c. ITP (integrated test processor)	AB	SC-3	N/A	IEEE-323-2003 IEEE-344-2004 IEEE-603-1991 IEEE-7-4.3.2-2003, ASME NQA-1-2008 IEC 61000-4-2-1992	Yes	I	

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
82. RS – Remote Shutdown Room							
a. Frame	AB	SC-3	N/A	IEEE-603-1991 IEEE-323-2003 IEEE-344-2004 IEEE-420-2013	Yes	I	
b. IFPD	AB	NNS	N/A	N/A	A	II	(3)(d)
c. ESCM	AB	SC-3	N/A	IEEE-603-1991 IEEE-323-2003 IEEE-344-2004 IEEE-420-2013	Yes	I	
d. Shutdown overview display panel (SODP)	AB	NNS	N/A	IEEE-603-1991 IEEE-323-2003 IEEE-344-2004 IEEE-420-2013	Yes	I	
e. Class 1E switch	AB	SC-3	N/A	IEEE-603-1991 IEEE-323-2003 IEEE-344-2004 IEEE-420-2013	Yes	I	
f. Non-Class 1E switch	AB	NNS	N/A	N/A	A	II	(3)(d)
83. RW – Radwaste Control Room	CB	NNS	N/A	N/A	N/A	III	

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
84. SA – Service Air							
a. Containment isolation valves and associated piping	AB, CPB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
b. Non-safety-related piping and equipment in safety-related areas	AB	NNS	D	ASME B31.1-2010	A	II	(3)(d)
c. Air compressor and auxiliaries	TGB	NNS	D	N/A	N/A	III	
d. Piping in non-safety-related areas	TGB	NNS	D	ASME B31.1-2010	N/A	III	
e. Others	TGB	NNS	D	N/A	N/A	III	
85. SC – Shutdown Cooling							
a. Shutdown cooling pumps	AB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
b. Shutdown cooling heat exchanger (tube/shell)	AB	SC-2/ SC-3	B/C	ASME Sec. III NC/ND-2007 with 2008 addenda	Yes	I	(N-1)
c. Shutdown cooling pump mini-flow heat exchanger (tube/shell)	AB	SC-2/ SC-3	B/C	ASME Sec. III NC/ND-2007 with 2008 addenda	Yes	I	(N-1)
d. Piping and Valves							
1) SCS suction piping and valves on the RCS side from RCS hot leg up to including SI-653, 654	RCB	SC-1	A	ASME Sec. III NB-2007 with 2008 addenda	Yes	I	
2) SC piping and valves from downstream of SI-653, 654 to upstream of and excluding SI-178, 168 the connecting point to SIS in the downstream of SI-601/600	RCB, AB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
3) Piping and valves on the IRWST cooling line from downstream of SI-688, 693 to SI-300, 301 (up to and including SI-391)	AB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
4) External reactor vessel cooling fill line downstream of and excluding SI-391	AB	NNS	D	ASME B31.1- 2007 with 2008, 2009 addenda 2010	A	II	(3)(d)
5) Piping and valves on the SCS filling line from and including SI-708, 709 to upstream of SI-106	AB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
6) Radioactive drain system connection piping	RCB, AB	NNS	D	ASME B31.1- 2007 with 2008, 2009 addenda 2010	A	II	(3)(d)
7) All relief valves discharge piping	RCB, AB	NNS	D	ASME B31.1- 2007 with 2008, 2009 addenda 2010	A	II	(3)(d)
86. SD – SG Blowdown							
a. From SG up to the anchor wall of the blowdown flash tank room, including containment isolation valves	RCB, AB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
b. Blowdown flash tank	AB	NNS	D	ASME Sec. VIII-2007 with 2008 addenda	A	II	(3)(d), (4)
c. Regenerative heat exchanger	AB	NNS	D	ASME Sec. VIII-2007 with 2008 addenda	A	II	(3)(d), (4)
d. Mixed bed demineralizer	AB	NNS	D	ASME Sec. VIII-2007 with 2008 addenda	A	II	(3)(d), (4)

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
e. Valves and piping from the anchor wall of the blowdown flash tank room to the points (V1045, 050) where discharged into the condensate, and the wastewater treatment system	AB	NNS	D	ASME B31.1-2010	A	II	(3)(d), (4)
f. Valves and piping from the points (V1045, 050) where discharged into the condensate, and the wastewater treatment system to the auxiliary building wall.	AB	NNS	D	ASME B31.1-2010	A	II	(3)(d)
g. Valves and piping from the anchor wall of the blowdown flash tank room to wall of MSIV room	AB	NNS	D	ASME B31.1-2010	A	II	(3)(d), (4)
h. Valves and piping at the downstream of wall of MSIV room	AB, TGB	NNS	D	ASME B31.1-2010	N/A	III	
i. Valves and piping except (e), (f), (g), and (h) within auxiliary building	AB	NNS	D	ASME B31.1-2010	A	II	(3)(d), (4)
j. Equipment and piping of the liquid radwaste system interfaced to the SGBS within the compound building	CPB	NNS	D	ASME B31.1-2010	N/A	III	(4)
k. Equipment and piping within the compound building and turbine building	CPB, TGB	NNS	D	ASME B31.1-2010	N/A	III	

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
l. Wet lay-up recirculation pump	AB	NNS	D	ASME Sec. VIII-2007 with 2008 addenda	A	II	(3)(d), (4)
m. Portion of wet lay-up subsystem within containment or auxiliary building except the containment penetration area and pressure boundaries.	RCB, AB	NNS	D	ASME B31.1-2010	N/A	II	(3)(d), (4)
87. SI – Safety Injection							
a. Safety injection pumps	AB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
b. Safety injection tanks	RCB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
c. Safety injection filling tank	AB	NNS	D	ASME Sec. VIII-2007 with 2008 addenda	N/A	III	
d. Piping and valves							
1) SIP miniflow line (from SIP orifice or SI-218, 219, 254, 255 to IRWST)	AB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
2) SI piping and valves from IRWST to upstream of and excluding the check valves SI-543, 541, 542, 540 and hot leg isolation valve SI-604, 609	RCB, AB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
3) SI piping and valves between the DVI nozzle and including the check valves SI-543, 541, 542, 540, SIT check valve SI-245, 225, 235, 215, and SI-648, 628, 638, 618	RCB	SC-1	A	ASME Sec. III NB-2007 with 2008 addenda	Yes	I	
4) Hot leg injection piping downstream of and including SI-523, 533 and SI-322, 323 332	RCB	SC-1	A	ASME Sec. III NB-2007 with 2008 addenda	Yes	I	
5) Hot leg injection piping from and excluding SI-604, 609 to upstream of and excluding SI-523, 533	RCB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
6) Piping and valves on the SIT filling and drain line from and including SI-290 to up to and including SI-661 and up to and excluding SI-322, 323, SI-245, 225, 235, 215, SI-648, 628, 638, 618. Piping between the valves SI-290 and SI-293 is not included.	RCB, AB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
7) SIT filling piping between the valves SI-290 and SI-293 (excluding SI-290 and SI-293)	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
8) SIT nitrogen supply piping up to and including valves SI-642, 622, 632, 612, 649, 629, 639, 619	RCB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
9) Piping and valves on the SIT atmosphere vent line up to and including valves SI-643, 623, 633, 613, 608, 606, 607, 605	RCB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
10) Piping and valves on the SIS filling line from and including SI-700, 714, 701, 715 to the piping downstream of SI-476, 435, 478, 447	AB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	(3)(d)
11) Piping and valves on the SIS filling line from SIFT to up to and including SI-722 and up to and excluding SI-700, 714, 701, 715 and SI-708, 709	AB	NNS	D	ASME B31.1- 2007 with 2008, 2009 addenda 2010	A	II	(3)(d)
12) SIFT vent line	AB	NNS	D	ASME B31.1- 2007 with 2008, 2009 addenda 2010	A	II	(3)(d)
13) Radioactive drain system connection piping	AB	NNS	D	ASME B31.1- 2007 with 2008, 2009 addenda 2010	A	II	(3)(d)
14) All relief valves discharge piping	AB	NNS	D	ASME B31.1- 2007 with 2008, 2009 addenda 2010	A	II	(3)(d)

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
88. SS – RCP Shaft Speed Sensing							
a. Safety-related components	RCB	SC-3	N/A	IEEE-323-2003 IEEE-344-2004 IEEE-383-2003	Yes	I	
b. Non-safety-related components	RCB	NNS	N/A	N/A	A	II	(3)(d)
89. SX – Essential Service Water							
a. Essential service water pumps	ESWB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
b. Essential service water debris filters	CCWHXB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
c. Essential service water supply piping and valves to CCW heat exchangers	CCWHXB ESWB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
d. Essential service water return piping and valves from CCW heat exchangers	CCWHXB, ESWB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
90. SY – Switchyard							
a. GIS and panels	Switch Yard	NNS	N/A	N/A	N/A	III	
b. EMS RTU, fault recorder	Switch Yard	NNS	N/A	N/A	N/A	III	
91. TA – Main Turbine and Auxiliary							
	TGB	NNS	D	ASME B31.1-2010	N/A	III	
92. TV – Closed Circuit Television							
a. Equipment in safety-related areas	RCB, AB, CCWHXB	NNS	N/A	N/A	A	II	(3)(d)
b. Others	AB	NNS	N/A	N/A	N/A	III	
93. VB – Compound Building HVAC							
a. Air handling units (AHUs) and associated components	CPB	NNS	E	ASME AG-1-2009	N/A	III	
b. Air cleaning units (ACUs) and associated components	CPB	NNS	E	ASME AG-1-2009 ASME N509-2002	N/A	III	(15)
c. Cubicle coolers and associated components	CPB	NNS	E	ASME AG-1-2009	N/A	III	
d. Packaged air conditioning units	CPB	NNS	E	ASME AG-1-2009	N/A	III	
e. Fans and motors	CPB	NNS	E	ASME AG-1-2009	N/A	III	
f. Dampers	CPB	NNS	E	ASME AG-1-2009	N/A	III	
g. Ductwork	CPB	NNS	E	ASME AG-1-2009	N/A	III	
h. Electric duct heaters	CPB	NNS	E	ASME AG-1-2009	N/A	III	
i. Humidifier	CPB	NNS	E	ASME AG-1-2009	N/A	III	

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
94. VC – Control Room HVAC							
a. Control room supply and return air subsystem							
1) AHUs and associated components excluding cooling coils	AB	SC-3	G	ASME AG-1-2009	Yes	I	
2) AHU cooling coils	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
3) Dampers	AB	SC-3	G	ASME AG-1-2009	Yes	I	
4) Humidifiers	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
5) Ductwork	AB	SC-3	G	ASME AG-1-2009	Yes	I	
b. Emergency makeup air cleaning subsystem							
1) ACUs and associated components	AB	SC-3	G	ASME AG-1-2009 ASME N509-2002	Yes	I	
2) Dampers	AB	SC-3	G	ASME AG-1-2009	Yes	I	
3) Ductwork	AB	SC-3	G	ASME AG-1-2009	Yes	I	
c. Exhaust air subsystem							
1) Fan and motor	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
2) Isolation dampers (Y0027 & Y0028), tornado damper (Y1102), and exhaust ductwork excluding ductwork between the isolation damper (Y0027) outlet and the tornado damper (Y1102) inlet	AB	SC-3	G	ASME-AG-1-2009	Yes	I	

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
3) Exhaust ductwork between the isolation damper (Y0027) outlet and the tornado damper (Y1102) inlet	AB	NNS	E	ASME-AG-1-2009	A	II	(3)(d)
d. Computer room air conditioning subsystem							
1) Packaged air conditioning units	AB	NNS	E	ASME AG-1-2009	N/A	III	
2) Dampers	AB	NNS	E	ASME AG-1-2009	N/A	III	
3) Ductwork	AB	NNS	E	ASME AG-1-2009	N/A	III	
e. Smoke removal subsystem							
1) Fan and motor	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
2) Isolation dampers (Y0029 & Y0030), tornado damper (Y1103), and smoke removal ductwork excluding ductwork between the isolation damper (Y0030) outlet and the tornado damper (Y1103) inlet	AB	SC-3	G	ASME AG-1-2009	Yes	I	
3) Smoke removal ductwork between the isolation damper (Y0030) outlet and the tornado damper (Y1103)	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
95. VD – EDG Area HVAC							
a. EDG room emergency HVAC subsystem							
1) Cubicle coolers and associated components excluding cooling coils	EDGB	SC-3	G	ASME AG-1-2009	Yes	I	
2) Cubicle cooler cooling coils	EDGB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
3) Dampers	EDGB	SC-3	G	ASME AG-1-2009	Yes	I	
4) Ductwork	EDGB	SC-3	G	ASME AG-1-2009	Yes	I	
b. EDG room normal HVAC subsystem							
1) AHUs and associated components excluding cooling coils	EDGB	SC-3	G	ASME AG-1-2009	Yes	I	
2) AHU cooling coils	EDGB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
3) Fans and motors	EDGB	SC-3	G	ASME AG-1-2009	Yes	I	
4) Dampers	EDGB	SC-3	G	ASME AG-1-2009	Yes	I	
5) Ductwork	EDGB	SC-3	G	ASME AG-1-2009	Yes	I	
c. Diesel fuel oil storage tank room HVAC subsystem							
1) Fan and motor	EDGB	SC-3	G	ASME AG-1-2009	Yes	I	
2) Dampers	EDGB	SC-3	G	ASME AG-1-2009	Yes	I	
3) Ductwork	EDGB	SC-3	G	ASME AG-1-2009	Yes	I	

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
96. VE – Electrical and I&C equipment areas HVAC							
a. Electrical and I&C equipment areas HVAC subsystem							
1) Safety-related cubicle coolers and associated components excluding cooling coils	AB	SC-3	G	ASME AG-1-2009	Yes	I	
2) Safety-related cubicle cooler cooling coils	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
3) Non-safety-related cubicle coolers and associated components	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
4) Safety-related electric duct heaters	AB	SC-3	G	ASME AG-1-2009	Yes	I	
5) Non-safety-related electric duct heaters	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
6) Humidifiers	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
7) Dampers	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
8) Ductwork	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
b. CEDM M/G set room HVAC subsystem							
1) AHU and associated components	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
2) Electric duct heaters	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
3) Humidifiers	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
4) Dampers	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
5) Ductwork	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
c. Class 1E battery room HVAC subsystem							
1) Fans and motors	AB	SC-3	G	ASME AG-1-2009	Yes	I	
2) Dampers	AB	SC-3	G	ASME AG-1-2009	Yes	I	
3) Electric duct heaters	AB	SC-3	G	ASME AG-1-2009	Yes	I	
4) Ductwork	AB	SC-3	G	ASME AG-1-2009	Yes	I	
d. Non-Class 1E battery room HVAC subsystem							
1) Fans and motors	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
2) Dampers	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
3) Electric duct heaters	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
4) Ductwork	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
e. Remote shutdown room HVAC subsystem							
1) Fans and motors	AB	SC-3	G	ASME AG-1-2009	Yes	I	
2) Safety-related cubicle coolers and associated components	AB	SC-3	G	ASME AG-1-2009	Yes	I	
3) Safety-related cubicle cooler cooling coils	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
4) Electric duct heaters	AB	SC-3	G	ASME AG-1-2009	Yes	I	
5) Humidifiers	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
6) Dampers	AB	SC-3	G	ASME AG-1-2009	Yes	I	
7) Ductwork	AB	SC-3	G	ASME AG-1-2009	Yes	I	
f. Remote control console room HVAC subsystem							
1) Packaged air conditioning unit	AB	NNS	E	ASME AG-1-2009	N/A	III	
97. VF – Fuel Handling Area HVAC							
a. Normal HVAC subsystem							
1) AHU and associated components	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
2) ACU and associated components	AB	NNS	E	ASME AG-1-2009 ASME N509-2002	A	II	(3)(d), (15)
3) Isolation dampers Y0001A & Y0002B and ductwork from outside intake to Y002B	AB	SC-3	G	ASME AG-1-2009	Yes	I	
4) Isolation dampers Y003A & Y0004B and ductwork from Y0003A to exhaust duct termination	AB	SC-3	G	ASME AG-1-2009	Yes	I	
5) Dampers excluding isolation dampers Y0001A, Y0002B, Y003A, and Y0004B	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
6) Ductwork excluding ductwork from outside intake to Y002B and ductwork from Y0003A to exhaust duct termination	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
b. Emergency HVAC Subsystem							
1) ACUs and associated components	AB	SC-3	G	ASME AG-1-2009 ASME N509-2002	Yes	I	
2) Safety-related cubicle coolers and associated components excluding cooling coils	AB	SC-3	G	ASME AG-1-2009	Yes	I	
3) Safety-related cubicle cooler cooling coils	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
4) Dampers	AB	SC-3	G	ASME AG-1-2009	Yes	I	
5) Ductwork	AB	SC-3	G	ASME AG-1-2009	Yes	I	
98. VK – Auxiliary Building Controlled Area HVAC							
a. HELB area HVAC subsystem							
1) AHU and associated components	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
2) ACU and associated components	AB	NNS	E	ASME AG-1-2009 ASME N509-2002	A	II	(3)(d), (15)
3) Cubicle coolers and associated components	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
4) Dampers	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
5) Ductwork	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
b. Aux. building controlled area I/II HVAC subsystem							
1) AHUs and associated components	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
2) Normal ACUs and associated components	AB	NNS	E	ASME AG-1-2009 ASME N509-2002	A	II	(3)(d), (15)
3) Emergency ACUs and associated components	AB	SC-3	G	ASME AG-1-2009 ASME N509-2002	Yes	I	
4) Dampers and ductwork associated with emergency ACUs	AB	SC-3	G	ASME AG-1-2009	Yes	I	
5) Isolation dampers and ductwork between and including Y0017A & Y0019B, Y0018A & Y0020B, Y0021A & Y0023B, Y0022A & Y0024B	AB	SC-3	G	ASME AG-1-2009	Yes	I	

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
6) Dampers and ductwork associated with AHUs and normal ACUs excluding isolation dampers and ductwork between and including Y0017A & Y0019B, Y0018A & Y0020B, Y0021A & Y0023B, Y0022A & Y0024B	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
7) Safety-related cubicle coolers and associated components excluding cooling coils	AB	SC-3	G	ASME AG-1-2009	Yes	I	
8) Safety-related cubicle cooler cooling coils	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
9) Non-safety-related cubicle coolers and associated components	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
99. VO – Auxiliary Building Clean Area HVAC							
a. Auxiliary building clean area I/II HVAC subsystem							
1) AHUs and components	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
2) Fans and motors	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
3) Safety-related cubicle coolers and associated components excluding cooling coils	AB	SC-3	G	ASME AG-1-2009	Yes	I	
4) Safety-related cubicle cooler cooling coils	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
5) Non-safety-related cubicle coolers and associated components	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
6) Dampers	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
7) Ductwork	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
b. Main steam valve room HVAC subsystem							
1) AHUs and associated components	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
2) Dampers	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
3) Ductwork	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
c. Main steam enclosure HVAC subsystem							
1) Fans and motors	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
2) Dampers	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
3) Ductwork	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
d. Auxiliary building smoke removal HVAC subsystem							
1) Fans and motors	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
2) Dampers	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
3) Ductwork	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
100.VP – Reactor Containment Building HVAC							
a. RCFC and associated components	RCB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
b. AHU and associated components	RCB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
c. Fans and motors	RCB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
d. Dampers	RCB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
e. Ductwork	RCB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
101.VQ – Reactor Containment Purge							
a. Containment isolation portions (including isolation damper and piping)	AB, RCB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
b. ACUs and associated components	AB	NNS	E	ASME AG-1-2009 ASME N509-2002	A	II	(3)(d), (15)
c. AHU and associated components	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
d. Fans and motors	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
e. Dampers	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)
f. Ductwork	AB	NNS	E	ASME AG-1-2009	A	II	(3)(d)

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
102.VT – Turbine Building HVAC							
a. AHUs and associated components	TGB	NNS	E	ASME AG-1-2009	N/A	III	
b. Fans and motors	TGB	NNS	E	ASME AG-1-2009	N/A	III	
c. Cubicle coolers and associated components	TGB	NNS	E	ASME AG-1-2009	N/A	III	
d. Electric duct heaters	TGB	NNS	E	ASME AG-1-2009	N/A	III	
e. Packaged air conditioning units and components	TGB	NNS	E	ASME AG-1-2009	N/A	III	
f. Dampers	TGB	NNS	E	ASME AG-1-2009	N/A	III	
g. Ductwork	TGB	NNS	E	ASME AG-1-2009	N/A	III	
103.WH – Turbine Generator Building Open Cooling Water	TGB	NNS	D	ASME B31.1-2010	N/A	III	
104.WD – Domestic Water							
a. Hydropneumatic tank	FPWTB	NNS	D	ASME Sec. VIII-2007 with 2008 addenda	N/A	III	
b. Domestic water pumps	FPWTB	NNS	D	HI Standards-2010	N/A	III	
a c. Non-safety-related components and piping in safety-related areas	AB, CCWHXB, ESXB	NNS	D	ASME Sec. VIII-2007 with 2008 addenda ASME B31.1-2010	A	II	(3)(d)
b. Domestic water pumps	FPWTB	NNS	D	HI Standards 2010	N/A	III	
a. Hydropneumatic tank	FPWTB	NNS	D	ASME Sec. VIII 2007 with 2008 addenda	N/A	III	

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
105.WI – Plant Chilled Water							
a. Central chilled water subsystem							
1) Containment penetration portions (including isolation valves and piping)	AB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
2) Chillers	AB	NNS	E	ASME Sec. VIII-2010 ASME AG-1-2009	A	II	(3)(d)
3) Pumps	AB	NNS	D	HI Standards-2010	A	II	(3)(d)
4) Compression tank	AB	NNS	D	ASME Sec. VIII-2010	A	II	(3)(d)
5) Air separator	AB	NNS	D	ASME Sec. VIII-2010	A	II	(3)(d)
6) Chemical additive tank	AB	NNS	D	ASME Sec. VIII-2010	A	II	(3)(d)
7) Control valves	AB	NNS	D	ASME B31.1-2010	A	II	(3)(d)
8) Manual valves	AB	NNS	D	ASME B31.1-2010	A	II	(3)(d)
9) Piping and accessories	AB	NNS	D	ASME B31.1-2010	A	II	(3)(d)
b. Compound building chilled water subsystem							
1) Chillers	CPB	NNS	E	ASME Sec. VIII -2010 ASME AG-1-2009	N/A	III	
2) Pumps	CPB	NNS	D	HI Standards-2010	N/A	III	
3) Compression tank	CPB	NNS	D	ASME Sec. VIII-2010	N/A	III	
4) Air separator	CPB	NNS	D	ASME Sec. VIII-2010	N/A	III	
5) Chemical additive tank	CPB	NNS	D	ASME Sec. VIII-2010	N/A	III	
6) Control valves	CPB	NNS	D	ASME B31.1-2010	N/A	III	
7) Manual valves	CPB	NNS	D	ASME B31.1-2010	N/A	III	

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
8) Piping	CPB	NNS	D	ASME B31.1-2010	N/A	III	
106.WM – Demineralized Water Makeup							
a. Containment isolation valves and associated piping	AB, RCB	SC-2	B	ASME Sec. III NC-2007 with 2008 addenda	Yes	I	
b. Non-safety-related components and piping in safety-related areas	AB, RCB	NNS	D	ASME B31.1-2010	A	II	(3)(d)
c. Demineralized water storage tanks	Yard	NNS	D	API 650-2007	N/A	III	
d. Demineralized water transfer pumps	FPWTB	NNS	D	HI Standards-2010	N/A	III	
e. WM-V1201A, V1205, V1220, V1700	Yard, FPWTB, UCT	NNS	D	ASME B31.1-2010	A	III	(3)(e)
e. Components f. Other components and piping in water treatment building	FPWTB	NNS	D	ASME Sec. VIII-2007 with 2008 addenda ASME B31.1-2010	N/A	III	

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
107.WO – Essential Chilled Water							
a. Chillers	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
b. Pumps	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
c. Compression tanks and air separators	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
d. Control valves	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
e. Manual valves	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
f. Piping	AB	SC-3	C	ASME Sec. III ND-2007 with 2008 addenda	Yes	I	
g. Chemical additive tanks	AB	NNS	D	ASME Sec. VIII-2010	A	II	(3)(d)
h. Refrigerant exhaust piping	AB	NNS	D	ASME Sec. VIII-2010	A	II	(3)(d)
i. Demineralized water makeup control valves	AB	NNS	D	ASME B31.1-2010	A	II	(3)(d)
j. Demineralized water makeup manual valve	AB	NNS	D	ASME B31.1-2010	A	II	(3)(d)
k. Nitrogen makeup control valves	AB	NNS	D	ASME B31.1-2010	A	II	(3)(d)
l. Chemical additive tank supply and return line piping and associated valves	AB	NNS	D	ASME B31.1-2010	A	II	(3)(d)

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
108.WT – Turbine Generator Building Closed Cooling Water							
a. Pumps	TGB	NNS	D	HI Standards-2010	N/A	III	
b. Heat exchangers	TGB	NNS	D	ASME B31.1-2010 ASME Sec. VIII-2007 with 2008 Addenda	N/A	III	03.02.02-5
c. Valves and associated piping	TGB	NNS	D	ASME B31.1-2010	N/A	III	
109.WV – Liquid Radwaste							
a. Piping and components in safety-related areas	CPB AB	NNS	D	ASME B31.1 - 2010	A	II	(3)(d) 03.02.02-5
b. Piping and valve containing radioactive materials	CPB	NNS	D	ASME B31.3 - 2010	A Note (4)	II/III Note (4)	(3)(d) (4) 03.02.02-5
c. Floor drain tank	CPB	NNS	D	API650 - 2007	N/A Note (4)	III Note (4)	03.02.02-5
d. Equipment waste tank	CPB	NNS	D	API650 – 2007	N/A Note (4)	III Note (4)	03.02.02-5
e. Chemical waste tank	CPB	NNS	D	API650 – 2007	N/A Note (4)	III Note (4)	03.02.02-5
f. Monitor tank	CPB	NNS	D	API650 – 2007	N/A Note (4)	III Note (4)	03.02.02-5
g. Acid storage tank	CPB	NNS	D	API650 – 2007	N/A	III	Not containing radioactive material 03.02.02-5
h. Acid batch tank	CPB	NNS	D	API650 – 2007	N/A	III	Not containing radioactive material 03.02.02-5

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i. Caustic storage tank	CPB	NNS	D	API650 – 2007	N/A	III	Not containing radioactive material	03.02.02-5
j. Seal water storage tank	CPB	NNS	D	API650 – 2007	N/A	III		03.02.02-5
k. Caustic batch tank	CPB	NNS	D	API650 – 2007	N/A	III	Not containing radioactive material	03.02.02-5
l. Chemical additive tank	CPB	NNS	D	API650 – 2007	N/A	III	Not containing radioactive material	03.02.02-5
m. Floor drain pump	CPB	NNS	D	API610 - 2010	N/A	III		03.02.02-5
n. Equipment waste pump	CPB	NNS	D	API610 - 2010	N/A	III		03.02.02-5

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Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
o. Chemical waste pump	CPB	NNS	D	API610 - 2010	N/A Note (4)	III Note (4)	
p. Monitor tank pump	CPB	NNS	D	API610 - 2010	N/A Note (4)	III Note (4)	
q. Seal water pump	CPB	NNS	D	API610 - 2010	N/A Note (4)	III Note (4)	
r. Acid batch pump	CPB	NNS	D	API610 - 2010	N/A	III	Not containing radioactive material
s. Caustic batch pump	CPB	NNS	D	API610 - 2010	N/A	III	Not containing radioactive material
t. Chemical additive pump	CPB	NNS	D	API610 - 2010	N/A	III	Not containing radioactive material
u. LRS seal water heat exchanger	CPB	NNS	D	ASME Sec. VIII - 2007 TEMA – 2007	N/A Note (4)	III Note (4)	
v. RO package	CPB	NNS	D	ASME Sec. VIII – 2007	A Note (4)	II/III Note (4)	(3)(d)
110.WX – Solid Radwaste							(4)
a. Piping and components in safety-related areas	AB	NNS	D	ASME B31.3 - 2010 ASME B31.1 - 2010 ASME Sec. VIII – 2007	A	II	(3)(d)
b. Solid waste compactor	CPB	NNS	D	N/A	N/A	III	
c. Piping and components containing radioactive material	AB, CPB	NNS	D	ASME B31.3 - 2010 ASME B31.1 - 2010	A	II/III	(3)(d)

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				ASME Sec. VIII - 2007 API-650 – 2007	Note (4)	Note (4)		03.02.02-5
d. Low-activity spent resin tank	CPB	NNS	D	ASME Sec. VIII - 2007	A Note (4)	H Note (4)	(3)(d)	03.02.02-5
f e. Spent resin long term storage tank	CPB	NNS	D	API650 – 2007	A Note (4)	H Note (4)	(3)(d)	03.02.02-5
g f. New resin tank	AB	NNS	D	ASME Sec. VIII – 2007	A Note (4)	H Note (4)	(3)(d)	03.02.02-5

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Table 3.2-1 (84 of 86)

Item No. / Principal SSCs SSC Identification	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks	
111.WY – Radioactive Laundry		NNS	D	API 650—2000 ASME B31.3—2010	N/A	III	(4)	03.02.02-5
a. Detergent waste tank	CPB	NNS	D	API650 – 2007	A Note (4)	II Note (4)	(3)(4)	03.02.02-5
b. Detergent waste tank pump	CPB	NNS	D	API610 – 2010	N/A Note (4)	III Note (4)		03.02.02-5
c. Detergent waste filter	CPB	NNS	D	ASME Sec. VIII - 2007	N/A Note (4)	III Note (4)		03.02.02-5
d. Piping and valves containing radioactive material	CPB	NNS	D	ASME B31.3 - 2010	Note (4)	Note (4)		03.02.02-5

(1) As used in this document, the term safety-related area applies to those areas containing equipment or structures required for safe shutdown (including accident mitigation).

(2) Locations are defined below:

RCB = Reactor Containment Building

CPB = Compound Building

CCWHXB = Component Cooling Water Heat Exchanger Building

CWPH=Circulating Water Pump House

MSVH = Main Steam Valve House

EOF = Emergency Operation Facility

AAC GTGB = Alternate Alternating Current Gas Turbine Generator Building

SWYD = Switchyard

AB = Auxiliary Building

TGB = Turbine Generator Building

ESWB = Essential Service Water Building

FPWTB = Fire Pump & Water/Wastewater Treatment Building

FHA = Fuel Handling Area

EDGB = Emergency Diesel Generator Building

ALL = All areas

(3) Legend:

- Yes – Compliance with the requirements of 10 CFR 50, Appendix B, is required.

- A – Augmented quality assurance requirements of Appendix B to 10 CFR 50, is applied. Augmented quality controls are applied to the following areas:

- (a) ATWS (Anticipated Transient without Scram)

- (b) Station Blackout

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- (c) Fire Protection
 - (d) Seismic Category II SSCs, external injection provision to cope with severe accident
 - (e) Risk significant non-safety related SSCs determined by design RAP
- N/A – The requirements of 10 CFR 50, Appendix B, are not required.

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- (4) Designed in accordance with NRC RG 1.143. The radwaste facilities, including the structures, systems, and components, are designed to meet the design basis loads, including the natural phenomena and internal and/or external man-induced hazards design criteria, in accordance with NRC RG 1.143.
- The radwaste safety classifications for the radioactive waste management systems: LWMS, GWMS, SWMS, and the SGBD systems and components, are presented in Sections 11.2, 11.3, 11.4, and 10.4.8, respectively.
 - The radwaste safety classification for the compound building, in which the LWMS, GWMS, and SWMS are housed, is RW-IIa in accordance with the guidance in RG 1.143. Radwaste treatment structure classified as Class RW-IIa is designed and constructed to meet the requirements of ACI 349 and AISC N690.
 - The components for the SGBD system are housed in the auxiliary building. The seismic design requirements for the auxiliary building exceed those for the radwaste safety classification. The seismic design loads for the building housing the SGBD system shall follow those for the auxiliary building.
- (5) Designed based on guidance contained in NRC NUREG-0696 and NUREG-0737, Supplement 1.
- (6) Security system requirements per 10 CFR 73.
- (7) ~~IEEE 497 endorsed by NRC RG 1.97 post accident monitoring parameters. Instrumentation meets qualification and quality requirements of this NRC RG and IEEE 497.~~ NRC RG 1.97 endorses IEEE 497 as an acceptable method for providing instrumentation to monitor variables for accident conditions, subject to the 5 NRC positions. Instrumentation meets qualification and quality requirements of NRC RG 1.97 and IEEE 497.
- (8) Guidance per NUREG-0718 and NRC RG 1.47.
- (9) Earthquake monitoring is per NRC RG 1.12.
- (10) Design guidance per NRC RG 1.13.
- (11) Design guidance per NRC RG 1.13, NUREG-0554, and NUREG-0612.
- (12) Design guidance per NRC RG 1.189.
- (13) The entire crane, including the bridge and trolley, is designed and constructed in accordance with NRC RG 1.29.
- (14) Non-safety-related diverse protection system per 10 CFR 50.62 and GL 85-06.
- (15) Non-safety-related ACUs and components, including fan/motor and associated isolation dampers, are designed and constructed per NRC RG 1.140.
- (16) Design guidance per NRC RG 1.45.
- (17) These codes and standards are applied to requirements of interface design.

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RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

APR1400 Design Certification

Korea Electric Power Corporation / Korea Hydro & Nuclear Power Co., LTD

Docket No. 52-046

RAI No.: 72-8020
SRP Section: 03.02.02 – System Quality Group Classification
Application Section: SRP 3.2.2
Date of RAI Issue: 07/15/2015

Question No. 03.02.02-6

10 CFR 50.55a(d)(1) requires that components classified as Quality Group B meet the requirements for Class 2 Components in Section III of the ASME BPV Code. In DCD Tier 2, Table 3.2-1, the applicant has specified Quality Group B classifications for several SSCs without providing a corresponding entry in the “Codes and Standards” column associated with this 10 CFR 50.55a(d)(1) requirement. An example is the Control Element Assembly Drive motor assembly on Page 9 of the Table. 10 CFR 50.55a(e)(1) has similar requirements for Quality Group C components. Please review the contents of Table 3.2-1 and ensure that appropriate Codes and Standards are specified for all SSCs with Quality Group classifications.

Response

Among the components that are specified as Quality Group B or C in Table 3.2-1, the Control Element Drive Mechanism (CEDM) motor assembly and extension shaft assembly are the only components that did not have a corresponding entry in the “Code and Standards” column.

The codes and standards for the CEDM motor assembly and extension shaft assembly were not provided in Table 3.2-1 because they are neither pressure boundary components nor electric components. The safety function of those components is limited to scramability, which was verified by testing as described in DCD section 3.9.4.4. Table 3.2-1 will be revised to add the explanation.

Impact on DCD

DCD Table 3.2-1 will be revised as indicated in the attachment.

Impact on PRA

There is no impact on the PRA.

Impact on Technical Specifications

There is no impact on the Technical Specifications.

Impact on Technical/Topical/Environmental Reports

There is no impact on any Technical, Topical or Environmental Reports.

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Table 3.2-1 (9 of 86)

Item No. / Principal SSCs	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
9) Non-essential supply and return piping in the compound building of the division II	RCB	NNS	D	ASME B31.1-2010	N/A	III	
10. CD – Condensate							
a. Piping in auxiliary bldg.	AB	NNS	D	ASME B31.1-2010	A	II	(3)(d)
b. Condenser, condensate pumps, tanks, valves, strainers, and feed water heaters	TGB	NNS	D	ASME B31.1-2010	N/A	III	
c. Other piping	TGB	NNS	D	ASME B31.1-2010	N/A	III	
11. CE – Control Element Assembly Drive							
a. Control element drive mechanism	RCB	SC-1	A	ASME Sec. III NB -2007 with 2008 addenda	Yes	I	
1) Pressure housing assembly	RCB	SC-1	A	ASME Sec. III NB -2007 with 2008 addenda	Yes	I	
2) Motor assembly	RCB	SC-2	B	N/A	Yes	I	(N-10)
3) Extension shaft assembly	RCB	SC-2	B	N/A	Yes	I	(N-10)
b. Reactor trip switchgear	RCB	SC-3	N/A	IEEE-603-1991	Yes	I	
c. Rod drive motor generator set	RCB	NNS	N/A	N/A	N/A	III	

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NSSS Notes:

- (N-1) Two safety classes are used for heat exchangers to distinguish primary and secondary sides where they are different.
- (N-2) Only those core support structures necessary to support and restrain the core and to maintain safe shutdown capability are classified as seismic Category I.
- (N-3) Loss of cooling water and/or seal water service to the reactor coolant pumps (RCPs) may require stopping the pumps. However, the continuous operation of the pumps is not required during or following an SSE. The auxiliaries are therefore not necessarily seismic Category I. The provision for cooling water to the pump bearing oil cooler and pump motor air cooler does not conform with the requirements of NRC RG 1.29.
- (N-4) Only those structural portions of the RCPs that are necessary to provide reasonable assurance of the integrity of the RCPB are Safety Class 1.
- (N-5) Safety classes of piping within the RCPB (as defined in 10 CFR 50) are selected in accordance with the ANSI/ANS 51.1 criteria. Safety Classes 1, 2, 3 and Non-Nuclear Safety of ANSI/ANS 51.1 are equivalent to Quality Groups A, B, C, and D of NRC RG 1.26, respectively.
- (N-6) Flow-restricting orifices are provided in the nozzles for the RCS sampling lines, the pressurizer (PZR) level and pressure instruments, the RCP differential pressure instrument lines, the common SI header pressure instrument lines, the RCP seal pressure instrument lines, the charging line differential pressure instrument line, and the SI hot leg injection pressure instrument lines to limit flow in the event of a downstream break of a nozzle. The orifice size, 5.55 mm (7/32 in) diameter × 25.4 mm (1 in) long, precludes exceeding fuel design limits while using minimum makeup rates. This permits orderly shutdown in the event of a downstream break in accordance with 10 CFR 50, Appendix A, GDC 33. A reduction may therefore be made in the classification of downstream lines of the orifice.
- (N-7) All containment isolation valves (and their operators) within NSSS scope of supply including manual valves, check valves, and relief valves, which also serve as isolation valves, are subject to the pertinent requirements of the Quality Assurance Program.
- (N-8) The POSRVs are used for overpressure protection and rapid depressurization function.
- (N-9) The “Associated Circuits” are defined, in accordance with IEEE Standard 384, as equipment, components, or systems the functions of which are Non-Nuclear Safety (NNS) and electrically Non-Class 1E, though their failures or abnormal states can affect the Class 1E equipment, components, or systems due to the effects of less than the minimum separation or the absence of electrical isolation from the Class 1E equipment, components, or systems. Consequently, the equipment, components, or systems, which are defined as “Associated Circuits” although they are functionally Non-Nuclear Safety, are subject to the qualification requirements placed on Class 1E equipment, components, or systems.

(N-10) Codes and standards are not specified because CEDM motor assembly and extension shaft assembly are neither pressure boundary components nor electric component. Safety function of those components is limited to scramability.