ESBWR DCD Chapter 2

26A6642AH Revision 3 to Revision 4 Change List

Item	Location (e.g., subsection with paragraph/sentence/item, table with column/row, or figure)	Description of Change
1	Acronym List	Editorial. Updated acronym list to contain only acronyms used in this DCD chapter.
2	S2.0, sixth bullet	Editorial. Changed "missile spectra" to "missile spectrum" for consistency with terminology in RG 1.76 and SRP 3.5.1.4.
3	S2.0, eighth bullet	Added "minimum dynamic bearing capacity" to list of parameters due to this parameter having been added to Table 2.0-1.
4	S2.0, first paragraph after bullets	Deleted "and II" from first sentence. Revised second sentence to read: "In addition, although the ESBWR design is independent of a particular site and takes into consideration the 0.3g Regulatory Guide 1.60 spectra and representative high frequency ground spectra in Central and Eastern U.S., the evaluation of each site for liquefaction potential and slope stability uses the site-specific SSE." (Relocated here from DCD Tier 2 Section 3.7.5.1 of Rev 2)
5	S2.0, next to last paragraph	Editorial. Changed "Subsection 2.0.1.1" to "Subsection 2.0.1, Item 2.0-1-A".
6	S2.0, last paragraph	Editorial. Changed "Subsection 2.0.1.2" to "Subsection 2.0.1, Items 2.0-2-A through 2.0-30-A".
7	S2.0.1	Editorial. Replaced subsection numbers 2.0.1.1 and 2.0.1.2 with COL item numbers "2.0-1-A" and "2.0-2-A through 2.0-30-A", respectively. Added "(Section 2.0)" to what is now item 2.0-1-A. Deleted "See Table 2.0-2 for details." and added "(Section 2.0 and Table 2.0-2 – see Table 2.0-2 for detailed COL item numbering by SRP section)" to what is now item 2.0-2-A through 2.0-30-A.
8	S2.0.2, Reference 2.0-3	Editorial. Changed "Source" to "Service".
9	S2.0.2	Added new references: 2.0-5 U. S. Nuclear Regulatory Commission, "A Risk-Informed Approach to Defining the Design Basis Tornado for New Reactor Licensing," SECY 04-0200, October 26, 2004. 2.0-6 National Weather Service Publication Hydrometeorology Report No. 53 (HMR-53)

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10	Table 2.0-1	Deleted "Design" from table title for consistency with terminology used in 10 CFR 50.79(b)(1).
11	Table 2.0-1, Extreme Wind	Added reference to note (13) to 100-year wind speed. Revised Non-Seismic Standard Plant Structures requirement to read: 50-year Wind Speed (3-sec gust): 58.1 m/s (130 mph) (per response to RAI 2.3-2 S02)
12	Table 2.0-1, Tornado	Editorial change for consistency with RG 1.76 terminology. Changed "Translational Velocity" to "Translational Speed". Changed "Maximum Pressure Differential" to "Pressure Drop". Changed "Rate of Pressure Change" to "Rate of Pressure Drop". Changed "spectra" to "spectrum" in two locations.
13	Table 2.0-1, Precipitation (for Roof Design)	Added following parameters: - Maximum Ground Snow Load (5) (100-year recurrence interval): 2394 Pa (50 lbf/ft^2) - Maximum 48-hr Winter Rainfall: (5) 91.4 cm (36 in) (per response to RAI 2.3-4 S01)
14	Table 2.0-1, Ambient Design Temperature	Revised 0% Exceedance Values to "47.2°C (117°F)" dry bulb and "31.1°C (88°F)" wet bulb (non-coincident). (per response to RAI 2.3-3 S01)
15	Table 2.0-1, Soil Properties	Replaced Minimum Static Bearing Capacity value with the following building-specific values: Reactor/Fuel Building: 699 kPa (14,600 lbf/ft^2) Control Building: 292 kPa (6,100 lbf/ft^2) Fire Water Service Complex: 165 kPa (3,450 lbf/ft^2) (per updated analysis for DCD Appendix 3G)

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16	Table 2.0-1, Soil Properties	Added Minimum Dynamic Bearing Capacity values as follows: Reactor/Fuel Building: Soft: 2700 kPa (56,400 lbf/ft^2) Medium: 7300 kPa (152,500 lbf/ft^2) Hard: 5400 kPa (112,800 lbf/ft^2) Control Building: Soft: 2800 kPa (58,500 lbf/ft^2) Medium: 2500 kPa (52,300 lbf/ft^2) Hard: 2400 kPa (50,200 lbf/ft^2) Fire Water Service Complex (FWSC): Soft: 440 kPa (9,200 lbf/ft^2) Medium: 540 kPa (11,300 lbf/ft^2) Hard: 670 kPa (14,000 lbf/ft^2) (per updated analysis for DCD Appendix 3G)
17	Table 2.0-1, Soil Properties	Reformatted listing for Liquefaction Potential parameter to include separate listings for Seismic Category I and other structures. Deleted "or II" and added "resulting from site-specific SSE" to description for Seismic Category I structures. Added "See note (14)" for other structures.
18	Table 2.0-1, Hazards in Site Vicinity	Changed "≤ 10^{-7}" to "< about 10^{-7}" for consistency with wording in SRP 3.5.1.6. Deleted "and Technical Support Center (TSC)" for consistency with changes in Subsection 9.4.7.
19	Table 2.0-1, Required Stability of Slopes	Added "due to site-specific SSE" to dynamic loading statement
20	Table 2.0-1, Maximum Settlement Values for Seismic Category I Buildings	Replaced "(see Subsections 3G.1.5.5.4 and 3G.2.5.5.1)" with a reference to footnote (15).

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21	Table 2.0-1, Maximum Settlement at any corner of basemat	Deleted "Mat" after "Under Reactor/Fuel Building". Added new line item: "- Under FWSC Structure 17 mm (0.7 inches)" (per updated analysis for DCD Appendix 3G)
22	Table 2.0-1, Averaged Settlement at four corners of basemat	Deleted "Mat" after "Under Reactor/Fuel Building". Revised Control Building values to "12 mm (0.5 inches)" Added new line item: "- Under FWSC Structure 10 mm (0.4 inches)" (per updated analysis for DCD Appendix 3G)
23	Table 2.0-1, Maximum Differential Settlement along the longest mat foundation dimension	Revised Control Building values to "14 mm (0.6 inches)" Added new line item: "- Under FWSC Structure 12 mm (0.5 inches)" (per updated analysis for DCD Appendix 3G)
24	Table 2.0-1, Meteorological Dispersion (X/Q)	Revised "filtered air intake" to "air intakes" in Note *. Added new notes as follows: ** Due to symmetry, Turbine Building X/Q values are identical for unfiltered inleakage and air intakes. NA Values are not required for any dose analysis. (per response to RAI 15.4-1 S01)

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25	Table 2.0-1, Meteorological Dispersion (X/Q)	Under subheading of Control Room X/Q: 1. Added "– Diffuse Source" after "Reactor Building." 2. Added new entries as follows: Fuel Building – Diffuse Source 0-2 hours: NA 2.80E-03 s/m^3 2-8 hours: NA 2.50E-03 s/m^3 8-24 hours: NA 1.25E-03 s/m^3 1-4 days: NA 1.10E-03 s/m^3 4-30 days: NA 1.00E-03 s/m^3 Fuel Building Cask Doors 0-2 hours: NA 1.50E-03 s/m^3 2-8 hours: NA 1.30E-03 s/m^3 8-24 hours: NA 6.80E-04 s/m^3 1-4 days: NA 5.60E-04 s/m^3 4-30 days: NA 4.30E-04 s/m^3 Radwaste Building 0-2 hours: NA 1.50E-03 s/m^3 2-8 hours: NA 1.30E-03 s/m^3 8-24 hours: NA 6.80E-04 s/m^3 1-4 days: NA 5.60E-04 s/m^3 4-30 days: NA 4.30E-04 s/m^3 (per response to RAI 15.4-1 S01)
26	Table 2.0-1, Note (3)	Revised text to read: "Maximum speed selected is based on Attachment 1 of Reference 2.0-5, which summarizes the NRC Interim Position on Regulatory Guide 1.76. Concrete structures designed to resist Spectrum I missiles of SRP 3.5.1.4, Rev. 2, also resist missiles postulated in Regulatory Guide 1.76, Revision 1."
27	Table 2.0-1, Note (4)	Revised second sentence to read: "Roof scuppers and drains are designed independently to limit water accumulation on the roof to no more than 100 mm (4 in) during PMP conditions." Deleted third sentence. (per response to RAI 2.3-4 S01)

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28	Table 2.0-1, Note (5)	Revised first sentence to read: "Maximum design roof load accommodates snow load and 48-hour probable maximum winter precipitation (PMWP) in References 2.0-2 and 2.0-6." Inserted new second sentence as follows: "Roof scuppers and drains are designed independently to limit water accumulation on the roof to no more than 100 mm (4 in) during PMWP conditions." (per response to RAI 2.3-4 S01)
29	Table 2.0-1, Note (7)	Replaced second sentence with the following: "For minimum dynamic bearing capacity site-specific application, use the larger value or a linearly interpolated value of the applicable range of shear wave velocities at the foundation level. The shear wave velocities of soft, medium and hard soils are 300 m/sec (1000 ft/sec), 800 m/sec (2600 ft/sec) and greater than or equal to 1700 m/sec (5600 ft/sec), respectively." (per response to RAI 3.8-94 S02)
30	Table 2.0-1, Note (8)	Revised first sentence to read: "This is the equivalent uniform shear wave velocity (V_{eq}) over the entire soil column at seismic strain, which is a lower bound value after taking into account uncertainties." (Relocated here from DCD Tier 2 Section 3.7.5.1 of Rev 2)
31	Table 2.0-1, Note (9)	Revised note text to read: "Safe Shutdown Earthquake (SSE) design ground response spectra of 5% damping, also termed Certified Seismic Design Response Spectra (CSDRS), are defined as free-field outcrop spectra at the foundation level (bottom of the base slab) of the Reactor/Fuel and Control Building structures. For ground surface founded Fire Water Service Complex structures, the CSDRS is 1.35 times the values shown in Figures 2.0-1 and 2.0-2."
32	Table 2.0-1, Note (13)	Added new note as follows: (13) Value was selected to comply with expected requirements of southeastern coastal locations. (per response to RAI 2.3-2 S02)

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33	Table 2.0-1, Note (14)	Added new note as follows: (14) Localized liquefaction potential under other than Seismic Category I structures is addressed per SRP 2.5.4 in Table 2.0-2.
34	Table 2.0-1, Note (15)	Added new note as follows: (15) Settlement values are long-term (post-construction) values except for differential settlement within the foundation mat. The design of the foundation mat accommodates immediate and long-term (post-construction) differential settlements after the installation of the basemat."
35	Table 2.0-2	Added individual COL item numbers 2.0-2-A through 2.0-30-A to each SRP section in this table for tracking purposes.
36	Table 2.0-2, Subsection 2.2.1 – 2.2.2	Revised ESBWR DCD Parameters column to read: "Per Table 2.0-1."
37	Table 2.0-2, Subsection 2.2.3	Editorial. Changed "missile spectra" to "missile spectrum".
38	Table 2.0-2, Subsection 2.4.13	Revised ESBWR DCD Parameters column to read: "The source term provided in Table 12.2-13a, "Liquid Waste Management System Equipment Drain Collection Tank Activity," is used in the effects analysis." Revised COL Information column to read: "COL applicant to address SRP 2.4.13" (per response to RAI 2.4-29 S01)
39	Table 2.0-2, Subsection 2.5.4	Added the following to the COL information statement: "and address localized liquefaction potential under other than Seismic Category I structures" (Relocated here from DCD Tier 2 Section 3.7.5.1 of Rev 2)