

ESBWR DCD Chapter 2

26A6642AH Revision 2 to Revision 3 Change List

Item	Location (e.g., subsection with paragraph/sentence/item, table with column/row, or figure)	Description of Change
1	Acronym List	Updated acronyms for consistency with revised names of DCIS, HVAC systems and turbine support systems. Deleted acronyms for EBAS, LPMS and PASS, which have been eliminated from the design.
2	S2.0	General editorial changes as shown in Attachment 1 of this change list.
3	S2.0.2	Added new references section with following items: 2.0-1 GE Nuclear Energy, "ESBWR Certification Probabilistic Risk Assessment," NEDO-33201, Class I (Non-proprietary), Revision 1, September 2006. 2.0-2 American Society of Civil Engineers, Minimum Design Loads for Buildings and Other Structures, ASCE 7-02, 2002. 2.0-3 National Weather Service Publication Hydrometeorology Report No. 52 (HMR-52) 2.0-4 Electric Power Research Institute, "Advanced Light Water Reactor Utility Requirements Document," Revision 6, May 1997.
4	Table 2.0-1, Tornado	Added reference to note (3) to Missile Spectra item.
5	Table 2.0-1, Ambient Design Temperature	Deleted "(Historical Limit)" from 0% exceedance values. Replaced it with clarifying text in note (6) as described later.
6	Table 2.0-1, Soil Properties	Liquefaction potential value modified to apply to both seismic category I and II structures. Added new item, "Angle of Internal Friction ≥ 30 degrees". (Incorporates response to RAI 3.8-96, Supplement 2.)
7	Table 2.0-1, Hazards in Site Vicinity	Added note to toxic gas value stating "Maximum toxic gas concentrations at the Main Control Room (MCR) and Technical Support Center (TSC) HVAC intakes < toxicity limits".

ESBWR DCD Chapter 2

26A6642AH Revision 2 to Revision 3 Change List

Item	Location (e.g., subsection with paragraph/sentence/item, table with column/row, or figure)	Description of Change
8	Table 2.0-1	Added new table row for "Maximum Settlement Values for Seismic Category I Buildings". See Attachment 2 for details. (Incorporates response to RAI 3.8-93, Supplement 2).
9	Table 2.0-1, Meteorological Dispersion (X/Q)	Revised values for Control Room X/Q as shown in Attachment 3. Added reference to new note (11) that reads: "(11) If a selected site has a X/Q value that exceeds the ESBWR reference site value, the COL applicant will address how the radiological consequences associated with the controlling design basis accident continue to meet the dose reference values provided in 10 CFR 50.34(a) and control room operator dose limits provided in General Design Criterion 19 using site-specific X/Q values."
10	Table 2.0-1, Long Term Dispersion Estimates	Added reference to new note (12) that reads: "If a selected site has a X/Q value that exceeds the ESBWR reference site value, the release concentrations in Table 12.2-17 would be adjusted proportionate to the change in X/Q. In addition, for a site selected that exceeds the bounding X/Q or D/Q values, the COL applicant will address how the resulting annual average doses (Table 12.2-18b) continue to meet the dose reference values provided in 10 CFR 50 Appendix I using site-specific X/Q and D/Q values."
11	Table 2.0-1, Note (2)	Changed "the Utility Requirements Document (URD)" to "Reference 2.0-4".
12	Table 2.0-1, Note (3)	Added following sentence to end of note: "Concrete structures designed to resist Spectrum I missiles of SRP 3.5.1.4, Rev. 2, will also resist missiles postulated in Draft Guide DG-1143." (Clarification)
13	Table 2.0-1, Note (4)	Changed "National Weather Service Publication Hydrometeorology Report No. 52 (HMR-52)" to "Reference 2.0-3". Added "See also Table 3G.1-2." at end of note.
14	Table 2.0-1, Note (5)	Changed "ASCE 7-02 and HMR-52" to "References 2.0-2 and 2.0-3. See also Table 3G.1-2."

ESBWR DCD Chapter 2

26A6642AH Revision 2 to Revision 3 Change List

Item	Location (e.g., subsection with paragraph/sentence/item, table with column/row, or figure)	Description of Change
15	Table 2.0-1, Note (6)	Revised first sentence to read: "Zero percent exceedance values are based on conservative estimates of historical high and low values for potential sites." Changed "the URD" to "Reference 2.0-4" in second sentence.
16	Table 2.0-1, Note (7)	Replaced second sentence with "See Subsections 3G.1.5.5, 3G.2.5.5 and 3G.3.5.5 for minimum dynamic bearing capacity for the Reactor, Control and Fuel Buildings, respectively." (Referenced material was relocated from Section 3.7.5.1 to Appendix 3G)
17	Table 2.0-1, Note (8)	<p>Revised note to read:</p> <p>(8) This is the equivalent uniform shear wave velocity (V_{eq}) at seismic strains after the soil property uncertainties have been applied. V_{eq} is calculated to achieve the same wave traveling time over the depth equal to the embedment depth plus 2 times the largest foundation plan dimension below the foundation as follows:</p> $V_{eq} = \frac{\sum d_i}{\sum \frac{d_i}{V_i}}$ <p>where d_i and V_i are the depth and shear wave velocity, respectively, of the ith layer. The ratio of the largest to the smallest shear wave velocity over the mat foundation width at the foundation level does not exceed 1.7.</p> <p>(Note - RAI 3.7-31(b) action relocated here from Section 3.7.5.1. Last sentence incorporates response to RAI 3.8-93, Supplement 2)</p>
18	Table 2.0-1, Note (10)	Editorial change – Replaced "don't" with "do not".
19	Table 2.0-2, Subsection 2.1.2	Changed ESBWR Parameter entry to read: "None."
20	Table 2.0-2, Subsection 2.1.3	Changed ESBWR Parameter entry to read: "ESBWR PRA offsite consequence analysis in Reference 2.0-1 is based on a population density of 305 people per square kilometer (790 per square mile)"

ESBWR DCD Chapter 2

26A6642AH Revision 2 to Revision 3 Change List

Item	Location (e.g., subsection with paragraph/sentence/item, table with column/row, or figure)	Description of Change
21	Table 2.0-2, Subsection 2.2.1 – 2.2.2	Added "See also Subsection 9.4.1.6." to COL Information column.
22	Table 2.0-2, Subsection 2.3.1	Added "that are not included as part of the ESBWR Standard Plant design." to end of first paragraph in COL Information column.
23	Table 2.0-2, Subsection 2.3.3	Minor editorial change – Replaced "Measurement" with "Measurements" in Subject column for consistency with SRP title.
24	Table 2.0-2, Subsection 2.3.4	Deleted second paragraph. Text relocated to Table 2.0-1, Note (11). Minor editorial change – Replaced "Diffusion" with "Dispersion" in Subject column for consistency with SRP title.
25	Table 2.0-2, Subsection 2.3.5	Deleted second paragraph. Text relocated to Table 2.0-1, Note (12).
26	Table 2.0-2, Subsection 2.4.9	Minor editorial change – Replaced "Diversion" with "Diversions" in Subject column for consistency with SRP title.
27	Table 2.0-2, Subsection 2.4.14	Minor editorial change – Replaced "Requirement" with "Requirements" in Subject column for consistency with SRP title.
28	Table 2.0-2, Subsection 2.5.2	Added "(and Figures 2.0-1 and 2.0-2)." to end of ESBWR Parameter column. Added "and confirm that it is enveloped by the ESBWR design response spectra referenced at the foundation level." to end of COL Information column. Deleted extraneous ":" in subject column.
29	Table 2.0-2, Subsection 2.5.3	Changed ESBWR Parameter entry to read: "ESBWR design assumes no permanent ground deformation from tectonic or non-tectonic faulting."

ESBWR DCD Chapter 2
26A6642AH Revision 2 to Revision 3 Change List

ATTACHMENT 1

Details of Editorial Text Changes in Section 2.0

ESBWR DCD Chapter 2
26A6642AH Revision 2 to Revision 3 Change List

ESBWR DCD Chapter 2
26A6642AH Revision 2 to Revision 3 Change List

ATTACHMENT 2

Maximum Settlement Values

Table 2.0-1		
Envelope of ESBWR Standard Plant Site Design Parameters		
Maximum Settlement Values for Seismic Category I Buildings (see Subsection 3G.1.5.5.4 and 3G.2.5.5.1):		
Maximum Settlement at any corner of basemat	- Under Reactor/Fuel Building Mat - Under Control Building	103 mm (4.0 inches) 18 mm (0.7 inches)
Averaged Settlement at four corners of basemat	- Under Reactor/Fuel Building Mat - Under Control Building	65 mm (2.6 inches) 11 mm (0.4 inches)
Maximum Differential Settlement along the longest mat foundation dimension	- within Reactor/Fuel Building - within Control Building	77 mm (3.0 inches) 13 mm (0.5 inches)
Maximum Differential Displacement between Reactor/Fuel Buildings and Control Building		85 mm (3.3 inches)

ESBWR DCD Chapter 2
26A6642AH Revision 2 to Revision 3 Change List

ATTACHMENT 3
Control Room X/Q Value Changes

Table 2.0-1			
Envelope of ESBWR Standard Plant Site Design Parameters			
* First value is for unfiltered inleakage. Second value is for filtered air intake (emergency and normal)	Control Room X/Q: *		
	Reactor Building		
	0-2 hours:	1.90E-03 s/m ³	1.50E-03 s/m ³
	2-8 hours:	1.30E-03 s/m ³	1.10E-03 s/m ³
	8-24 hours:	5.90E-04 s/m ³	5.00E-04 s/m ³
	1-4 days:	5.00E-04 s/m ³	4.20E-04 s/m ³
	4-30 days	4.40E-04 s/m ³	3.80E-04 s/m ³
	Passive Containment Cooling System / Reactor Building Roof		
	0-2 hours:	3.40E-03 s/m ³	3.00E-03 s/m ³
	2-8 hours:	2.70E-03 s/m ³	2.50E-03 s/m ³
	8-24 hours:	1.40E-03 s/m ³	1.20E-03 s/m ³
	1-4 days:	1.10E-03 s/m ³	9.00E-04 s/m ³
	4-30 days	7.90E-04 s/m ³	7.00E-04 s/m ³
	Turbine Building		
	0-2 hours:	1.20E-03 s/m ³	1.20E-03 s/m ³
	2-8 hours:	9.80E-04 s/m ³	9.80E-04 s/m ³
	8-24 hours:	3.90E-04 s/m ³	3.90E-04 s/m ³
	1-4 days:	3.80E-04 s/m ³	3.80E-04 s/m ³
	4-30 days	3.20E-04 s/m ³	3.20E-04 s/m ³