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Subject: **Response to Portion of NRC Request for Additional Information Letter No. 117 Related to ESBWR Design Certification Application – Site Characteristics – RAI Numbers 2.0-1 and 2.3-3 S02**

The purpose of this letter is to submit the GE Hitachi Nuclear Energy (GEH) response to the U.S. Nuclear Regulatory Commission (NRC) Request for Additional Information (RAI) sent by NRC letter dated December 5, 2007 (Reference 1). RAI 2.3-3, Supplement 1 was provided by Reference 2 for which response was provided by Reference 3. The original RAI 2.3-3 was provided by Reference 4 for which response was provided by Reference 5.

GEH responses to RAI Numbers 2.0-1 and 2.3-3 S02 are addressed in Enclosure 1. The DCD Markup related to the response to RAI 2.0-1 is provided in Enclosure 2. The DCD Markup related to the response to RAI 2.3-3 S02 is provided in Enclosure 3.

The enclosed DCD markup pages may contain unverified changes in addition to the verified changes resulting from the RAI responses. Pending verified DCD changes associated with these RAI responses are boxed for emphasis. Other changes shown in the enclosed DCD markups may not be reflective of the final format and content of DCD Revision 5 when submitted (i.e., those markups may include changes that are not fully developed and approved for inclusion in the DCD).

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NRO

If you have any questions or require additional information, please contact me.

Sincerely,

James C. Kinsey
Vice President, ESBWR Licensing

References:

1. MFN 07-656, Letter from U.S. Nuclear Regulatory Commission to Robert E. Brown, *Request for Additional Information Letter No. 117 Related to the ESBWR Design Certification Application,* December 5, 2007.
2. E-mail from NRC to GE dated April 2, 2007.
3. MFN 06-206 S01, *Response to Portion of NRC Request for Additional Information Letter Number 37 Related to ESBWR Design Certification Application – Siting Issues – RAI Numbers 2.3-2 S01, 2.3-3 S01, and 2.3-4 S01,* May 8, 2007.
4. MFN 06-201, , Letter from U.S. Nuclear Regulatory Commission to David H. Hinds, *Request for Additional Information Letter No. 37 Related to the ESBWR Design Certification Application,* June 21, 2006.
5. MFN 06-206, *Response to Portion of NRC Request for Additional Information Letter Number 37 Related to ESBWR Design Certification Application – Siting Issues – RAI Numbers 2.1-1, 2.2-1 through 2.2-3, 2.3-1 through 2.3-6, 14.3-22, 15.3-1, 15.3-3, and 2.4-32,* July 31, 2006.

Enclosures:

1. Response to Portion of NRC Request for Additional Information Letter No. 117 Related to ESBWR Design Certification Application – Site Characteristics - RAI Number 2.3-11
2. DCD markup pages associated with RAI 2.0-1 response.
3. DCD markup pages associated with RAI 2.3-3 S02 response.

cc:	AE Cubbage	USNRC (with enclosure)
	RE Brown	GEH/Wilmington (with enclosure)
	DH Hinds	GEH/Wilmington (with enclosure)
	GB Stramback	GEH/San Jose (with enclosure)
	eDRF	0000-0078-5525 R1 (RAI 2.0-1)
		0000-0078-6962 (RAI 2.3-3 S02)

Enclosure 1

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Response to Portion of NRC Request for Additional Information Letter No. 117 Related to ESBWR Design Certification Application

Site Characteristics

RAI Numbers 2.0-1 and 2.3-3 S02[1]

[1]Original Response and Supplement 1 previously submitted under MFNs 06-206 and 06-206 S01 without DCD updates are included to provide historical continuity during review.

NRC RAI 2.0-1

The footnotes in Revision 3 to DCD Tier 1 Table 5.1-1 were removed in Revision 4. Some of these footnotes define the site parameters. For example, footnote 4 defined the zero percent ambient design temperature, footnote 8 defined the minimum shear wave velocity, and footnote 9 defined the safe shutdown earthquake. Therefore, revise DCD Tier 1 Table 5.1-1 to ensure enough information is included to define each of the site parameters presented in the table.

GEH Response

DCD Tier 1 Table 5.1-1 will be revised to retain only those footnotes in DCD Tier 2 Table 2.0-1 that are intrinsic to the description of the ESBWR Standard Plant site design parameter and are not background information for the parameter.

In addition, GEH notes that in our response to NRC RAI 14.3-22, we provided a markup of Revision 2 of DCD Tier 1 Table 5.1-1 to include footnotes pertaining to extreme wind, tornado and precipitation site parameters applicable to the ESBWR. However, subsequent to the GEH transmittal of MFN 06-206 on July 31, 2006 that includes the response to NRC RAI 14.3-22, SRP Section 14.3, *Inspections, Tests, Analyses, and Acceptance Criteria*, was issued March 2007 by the NRC, which provides guidance on the content requirement of DCD Tier 1.

In accordance with SRP Section 14.3, information is designated as Tier 1 if change to this information would require a finding by the NRC that the change is needed to assure adequate protection of the public health and safety. The footnotes pertaining to extreme wind, tornado and precipitation site parameters are not intrinsic to the description of the parameter and would not warrant a potential determination by the NRC that the information is critical to protection of the public health and safety.

Therefore, it is GEH's position that the footnotes pertaining to extreme wind, tornado and precipitation site parameters do not need to be included in Revision 5 of DCD Tier 1 Table 5.1-1.

The GEH response to NRC RAI 3.7-61, Supplement 1, transmitted via MFN 07-626, Supplement 1 dated February 22, 2008, refers to the GEH response to NRC RAI 2.0-1. The GEH response to NRC RAI 3.7-61, Supplement 1 remains valid even though it was transmitted to the NRC prior to the transmittal of NRC RAI 2.0-1.

DCD Impact

DCD Tier 1, Table 5.1-1, will be revised in Revision 5 as noted in the attached markups.

NRC RAI 2.3-3

With respect to design temperatures given in DCD Tier 2, Table 2.0-1, what is the definition of the zero and one percent design temperature exceedances? For example, is the zero percent exceedance the historical high or low value as stated in Tier I Table 5.1-1? Is the one percent exceedance an annual exceedance or is it a 100 year return value? Please revise tables and text to provide this level of detail at all places where values are given.

GE Response

The zero percent exceedance values for design temperatures given in DCD Tier 2, Table 2.0-1 are the historical high or low values as stated in Tier 1, Table 5.1-1.

The one percent exceedance values are also historical values based on a review of the data available in the ESP applications submitted by Dominion, Entergy and Exelon for the North Anna, Grand Gulf and Clinton sites, respectively. Table 1.2-6 in Volume III of the Utility Requirements Document (URD) was also reviewed. A set of parameters that bounds all three sites and the URD were selected for use in the ESBWR DCD.

The attached markup shows how the DCD tables and text will be updated to reflect this clarification.

DCD Impact

Markups of the DCD were provided in MFN 06-206.

NRC RAI 2.3-3 S01

Comments on response to RAI 2.3-3:

This RAI addresses a concern that the ESBWR zero percent exceedance (historic limit) maximum dry bulb temperature and maximum non-coincident wet bulb temperature standard plant site design parameters may not bound a reasonable number of sites.

In order to determine whether the ambient design temperature standard plant site design parameters bound a reasonable number of sites that may be considered within a COL application, the staff compared the ESBWR ambient design temperature standard plant site design parameters to the ambient air temperature and humidity site characteristics identified in the Safety Evaluations for the first three docketed Early Site Permit Applications. In performing this comparison, the staff considers the zero percent exceedance or historic limit ambient design temperature standard plant site design parameters presented in the ESBWR DCD to be equivalent to 100-year return period ambient air temperature and humidity site characteristic values presented in the first three docketed ESP Safety Evaluations.

The staff found that the ESP 100-year return period maximum dry bulb temperature site characteristic for Clinton, 117°F, was higher than the ESBWR zero percent exceedance (historic limit) standard plant site design parameter of 115°F. Likewise, the staff found that the ESP 100-year return period maximum non-coincident wet bulb temperature site characteristics for North Anna and Clinton, 88°F and 86°F, respectively, were higher than the ESBWR zero percent exceedance (historic limit) standard plant site design parameter of 85°F. Consequently, the ESBWR zero percent exceedance (historic limit) maximum dry bulb temperature and maximum non-coincident wet bulb temperature standard plant site design parameters may not bound a reasonable number of sites that may be considered within a COL application.

Consequently, please revise the ESBWR zero percent exceedance (historic limit) maximum dry bulb temperature and maximum non-coincident wet bulb temperature standard plant site design parameters to be more inclusive of a number of sites that may be considered within a COL application.

GE Response

GE has reviewed the staff's Safety Evaluation Reports for North Anna (NUREG-1835, Table 2.3.1-1) and Clinton (NUREG-1844, Table 2.3.1-5), and agrees with the requested change in 0% exceedance values.

DCD Impact

Markups of DCD Tier 2 Table 2.0-1 were provided in MFN 06-206 Supplement 1. The same changes were made to DCD Tier 1 Table 5.1-1.

NRC RAI 2.3-3 S02

Clarify the definition of the ambient design temperature site parameters listed in DCD Tier 1 Table 5.1-1 and DCD Tier 2 Table 2.0-1. For example, do the 1 percent and 2 percent exceedance ambient design temperature site parameters represent annual or seasonal probabilities of occurrence? Do the coincident wet bulb temperature values represent mean or maximum values?

GEH Response

The 1% and 2% ambient design temperatures are annual exceedance values. The coincident wet bulb temperatures reported in the ESBWR DCD are the mean coincident wet bulb temperature that is expected to occur at the maximum dry bulb temperature for the given annual exceedance value. This interpretation is based on the manner in which the two values are typically reported in the ASHRAE Handbook and applied to the design of HVAC systems.

DCD Impact

DCD Tier 2, Table 2.0-1, and its Note (6) will be revised in Revision 5 as noted in the attached markup.

DCD Tier 1, Table 5.1-1, will be revised in Revision 5 as noted in the attached markup.

Enclosure 2

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DCD Markup Pages

RAI 2.0-1

The enclosed DCD markup pages may contain unverified changes in addition to the verified changes resulting from the RAI responses. Pending verified DCD changes associated with these RAI responses are boxed for emphasis. Other changes shown in the enclosed DCD markups may not be reflective of the final format and content of DCD Revision 5 when submitted (i.e., those markups may include changes that are not fully developed and approved for inclusion in the DCD).

Table 5.1-1

Envelope of ESBWR Standard Plant Site ~~Design~~ Parameters (1)

Maximum Ground Water Level:	0.61 m (2 ft) below plant grade
Extreme Wind:	**Seismic Category I and II Structures** - 100-year Wind Speed (3-sec gust): 67.1 m/s (150 mph) - Exposure Category: D **Non-Seismic Standard Plant Structures** - 50-year Wind Speed (3-sec gust): 58.1 m/s (130 mph)
Maximum Flood (or Tsunami) Level:	0.3 m (1 ft) below plant grade
Tornado:	- Maximum Tornado Wind Speed: 147.5 m/s (330 mph) - Maximum Rotational Speed: 116.2 m/s (260 mph) - Translational Speed: 31.3 m/s (70 mph) - Radius: 45.7 m (150 ft) - Pressure Drop: 16.6 kPa (2.4 psi) - Rate of Pressure Drop: 11.7 kPa/s (1.7 psi/s) - Missile Spectrum: Spectrum I of SRP 3.5.1.4, Rev 2 applied to full building height.
Precipitation (for Roof Design):	- Maximum Rainfall Rate: 49.3 cm/hr (19.4 in/hr) - Maximum Short Term Rate: 15.7 cm (6.2 in) in 5 minutes. - Maximum Roof Load: 2873 Pa (60 lbf/ft^2) - Maximum Ground Snow Load (100-year recurrence interval): 2394 Pa (50 lb/ft^2) - Maximum 48-hr Winter Rainfall: 91.4 cm (36 in)
Ambient Design Temperature:	**2% Annual Exceedance Values** - Maximum: 35.6°C (96°F) dry bulb 26.1°C (79°F) wet bulb (mean coincident) 27.2°C (81°F) wet bulb (non-coincident) - Minimum: -23.3°C (-10°F) **1% Annual Exceedance Values** - Maximum: 37.8°C (100°F) dry bulb 26.1°C (79°F) wet bulb (mean coincident) 27.8°C (82°F) wet bulb (non-coincident) - Minimum: -23.3°C (-10°F) **0% Exceedance Values** - Maximum: 47.2°C (117°F) dry bulb 26.7°C (80°F) wet bulb (mean coincident) 31.1°C (88°F) wet bulb (non-coincident) - Minimum: -40°C (-40°F)

Table 5.1-1
Envelope of ESBWR Standard Plant Site ~~Design~~ Parameters (continued)

Soil Properties:	- Minimum Static Bearing Capacity (2) 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) - Minimum Dynamic Bearing Capacity (2) **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) - Minimum Shear Wave Velocity (3) 300 m/s (1000 ft/s) - Liquefaction Potential: Seismic Category I Structures: None under footprint of Seismic Category I structures resulting from site-specific SSE. - Angle of Internal Friction ≥ 30 degrees
Seismology:	- SSE Horizontal Ground Response Spectra: (4) See Figure 5.1-1 - SSE Vertical Ground Response Spectra: (4) See Figure 5.1-2
Hazards in Site Vicinity:	- Site Proximity Missiles and Aircraft: ~~≤~~ < about 10^{-7} per year - Volcanic Activity: None - Toxic Gases: None * ~~- Volcanic Activity: None~~ * Maximum toxic gas concentrations at the Main Control Room (MCR) HVAC intakes: < toxicity limits
Required Stability of Slopes:	- Factor of safety for static (non-seismic) loading 1.5 - Factor of safety for dynamic (seismic) loading due to site-specific SSE 1.1

Table 5.1-1
Envelope of ESBWR Standard Plant Site ~~Design~~ Parameters (continued)

Meteorological Dispersion (X/Q):	EAB X/Q:		
	0-2 hours:	2.00E-03 s/m^3	
	LPZ X/Q:		
	0-8 hours:	1.90E-04 s/m^3	
	8-24 hours:	1.40E-04 s/m^3	
	1-4 days:	7.50E-05 s/m^3	
	4-30 days:	3.00E-05 s/m^3	
* First value is for unfiltered inleakage. Second value is for air intakes (emergency and normal)	Control Room X/Q: *		
	Reactor Building – Diffuse Source		
	0-2 hours:	1.90E-03 s/m^3	1.50E-03 s/m^3
** Due to symmetry, Turbine Building X/Q values are identical for unfiltered inleakage and air intakes.	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
NA Values are not required for any dose analysis.	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
	Fuel Building – Diffuse Source		
	0-2 hours:	NA	2.80E-03 s/m3
	2-8 hours:	NA	2.50E-03 s/m3
	8-24 hours:	NA	1.25E-03 s/m3
	1-4 days:	NA	1.10E-03 s/m3
	4-30 days:	NA	1.00E-03 s/m3

Table 5.1-1
Envelope of ESBWR Standard Plant Site ~~Design~~ Parameters (continued)

Meteorological Dispersion (X/Q): (continued)	Fuel Building Cask Doors		
	0-2 hours:	NA	1.50E-03 s/m3
	2-8 hours:	NA	1.30E-03 s/m3
	8-24 hours:	NA	6.80E-04 s/m3
	1-4 days:	NA	5.60E-04 s/m3
	4-30 days:	NA	4.30E-04 s/m3
	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

Notes:

(1) The design of the Radwaste Building uses a set of design parameters that are specified in Regulatory Guide 1.143, Table 2, Class RW-IIa instead of the corresponding values given in this table.

(2) At foundation level of Seismic Category I structures. 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.

(3) This is the equivalent uniform shear wave velocity (Veq) over the entire soil column at seismic strain, which is a lower bound value after taking into account uncertainties. Veq 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:

$$V_{eq} = \frac{\sum d_i}{\sum \frac{d_i}{V_i}}$$

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.

(4) 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 5.1-1 and 5.1-2.

Enclosure 3

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DCD Markup Pages

RAI 2.3-3 S02

The enclosed DCD markup pages may contain unverified changes in addition to the verified changes resulting from the RAI responses. Pending verified DCD changes associated with these RAI responses are boxed for emphasis. Other changes shown in the enclosed DCD markups may not be reflective of the final format and content of DCD Revision 5 when submitted (i.e., those markups may include changes that are not fully developed and approved for inclusion in the DCD).

Table 2.0-1

Envelope of ESBWR Standard Plant Site Parameters [1]

Maximum Ground Water Level:	0.61 m (2 ft) below plant grade
Extreme Wind:	**Seismic Category I and II Structures** - 100-year Wind Speed (3-sec gust): [13] 67.1 m/s (150 mph) - Exposure Category: D **Non-Seismic Standard Plant Structures** - 50-year Wind Speed (3-sec gust): 58.1 m/s (130 mph)
Maximum Flood (or Tsunami) Level: [2]	0.3 m (1 ft) below plant grade
Tornado:	- Maximum Tornado Wind Speed: [3] 147.5 m/s (330 mph) - Maximum Rotational Speed: 116.2 m/s (260 mph) - Translational Speed: 31.3 m/s (70 mph) - Radius: 45.7 m (150 ft) - Pressure Drop: 16.6 kPa (2.4 psi) - Rate of Pressure Drop: 11.7 kPa/s (1.7 psi/s) - Missile Spectrum: [3] Spectrum I of SRP 3.5.1.4, Rev 2 applied to full building height.
Precipitation (for Roof Design):	- Maximum Rainfall Rate: [4] 49.3 cm/hr (19.4 in/hr) - Maximum Short Term Rate: 15.7 cm (6.2 in) in 5 minutes - Maximum Roof Load: [5] 2873 Pa (60 lbf/ft^2) - 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)
Ambient Design Temperature: [6]	**2% Annual Exceedance Values** - Maximum: 35.6°C (96°F) dry bulb 26.1°C (79°F) wet bulb (mean coincident) 27.2°C (81°F) wet bulb (non-coincident) - Minimum: -23.3°C (-10°F) **1% Annual Exceedance Values** - Maximum: 37.8°C (100°F) dry bulb 26.1°C (79°F) wet bulb (mean coincident) 27.8°C (82°F) wet bulb (non-coincident) - Minimum: -23.3°C (-10°F) **0% Exceedance Values** - Maximum: 47.2°C (117°F) dry bulb 26.7°C (80°F) wet bulb (mean coincident) 31.1°C (88°F) wet bulb (non-coincident) - Minimum: -40°C (-40°F)

Notes for Table 2.0-1:

(1) The design of the Radwaste Building uses a set of design parameters that are specified in Regulatory Guide 1.143, Table 2, Class RW-IIa instead of the corresponding values given in this table.

(2) Probable maximum flood level (PMF), as defined in Table 1.2-6 of Volume III of Reference 2.0-4.

(3) 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.

(4) Based on probable maximum precipitation (PMP) for one hour over 2.6 km^2 (one square mile) with a ratio of 5 minutes to one hour PMP of 0.32 as found in Reference 2.0-3. 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. See also Table 3G.1-2.

(5) Maximum design roof load accommodates snow load and 48-hour probable maximum winter precipitation (PMWP) in References 2.0-2 and 2.0-6. Roof scuppers and drains are designed independently to limit water accumulation on the roof to no more than an average depth of 100 mm (4 in) during PMWP conditions. See also Table 3G.1-2.

(6) Zero percent exceedance values are based on conservative estimates of historical high and low values for potential sites. One and two percent annual exceedance values were selected in order to bound the values presented in Reference 2.0-4 and available Early Site Permit applications.

(7) At foundation level of Seismic Category I structures. 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.

(8) 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. 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:

$$V_{eq} = \frac{\sum d_i}{\sum \frac{d_i}{V_i}}$$

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.

(9) Safe Shutdown Earthquake (SSE) design ground response spectra of 5% damping, also termed Certified Seismic Design Response Spectra (CSDRS), are defined as free-field

Table 5.1-1

Envelope of ESBWR Standard Plant Site ~~Design~~ Parameters [1]

Maximum Ground Water Level:	0.61 m (2 ft) below plant grade
Extreme Wind:	**Seismic Category I and II Structures** - 100-year Wind Speed (3-sec gust): 67.1 m/s (150 mph) - Exposure Category: D **Non-Seismic Standard Plant Structures** - 50-year Wind Speed (3-sec gust): 58.1 m/s (130 mph)
Maximum Flood (or Tsunami) Level:	0.3 m (1 ft) below plant grade
Tornado:	- Maximum Tornado Wind Speed: 147.5 m/s (330 mph) - Maximum Rotational Speed: 116.2 m/s (260 mph) - Translational Speed: 31.3 m/s (70 mph) - Radius: 45.7 m (150 ft) - Pressure Drop: 16.6 kPa (2.4 psi) - Rate of Pressure Drop: 11.7 kPa/s (1.7 psi/s) - Missile Spectrum: Spectrum I of SRP 3.5.1.4, Rev 2 applied to full building height.
Precipitation (for Roof Design):	- Maximum Rainfall Rate: 49.3 cm/hr (19.4 in/hr) - Maximum Short Term Rate: 15.7 cm (6.2 in) in 5 minutes. - Maximum Roof Load: 2873 Pa (60 lbf/ft^2) - Maximum Ground Snow Load (100-year recurrence interval): 2394 Pa (50 lb/ft^2) - Maximum 48-hr Winter Rainfall: 91.4 cm (36 in)
Ambient Design Temperature:	**2% Annual Exceedance Values** - Maximum: 35.6°C (96°F) dry bulb 26.1°C (79°F) wet bulb (mean coincident) 27.2°C (81°F) wet bulb (non-coincident) - Minimum: -23.3°C (-10°F) **1% Annual Exceedance Values** - Maximum: 37.8°C (100°F) dry bulb 26.1°C (79°F) wet bulb (mean coincident) 27.8°C (82°F) wet bulb (non-coincident) - Minimum: -23.3°C (-10°F) **0% Exceedance Values** - Maximum: 47.2°C (117°F) dry bulb 26.7°C (80°F) wet bulb (mean coincident) 31.1°C (88°F) wet bulb (non-coincident) - Minimum: -40°C (-40°F)