PMSTPCOL PEmails

From: Govan, Tekia
Sent: Wednesday, August 19, 2009 6:14 PM
To: 'Bense, Richard'
Cc: STPCOL
Subject: DRAFT RAIs
Attachments: RAI 3329.doc; RAI 3547.doc; RAI 3548.doc

Dick,

Please review the attached RAIs. If you feel we need a conference call to clarify the requested information, please contact me within 5 business days. If a conference call is not needed (please send an email) I will continue the formal process of issuing the RAIs to STPNOC.

These RAIs relate to section 2.3 and are products of the Phase 2 review.

Tekia V. Govan, Project Manager
U.S. Nuclear Regulatory Commission
Office of New Reactors
MS T-7-F29
Washington DC 20555-0001
301-415-6197
Tekia.Govan@nrc.gov

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"STPCOL" <STP.COL@nrc.gov>
Tracking Status: None
"'Bense, Richard'" <rhbense@STPEGS.COM>
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MESSAGE	607	8/19/2009 6:14:04 PM
RAI 3329.doc	38394	
RAI 3547.doc	31226	
RAI 3548.doc	30714	

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Request for Additional Information No. 3329 Revision 2

South Texas Project Units 3 and 4
South Texas Project Nuclear Operating Co
Docket No. 52-012 and 52-013
SRP Section: 02.03.01 - Regional Climatology
Application Section: FSAR Tier 2, Section 2.3S.1.5 and Table 2.0-2

QUESTIONS for Siting and Accident Conseq Branch (RSAC)

02.03.01-***

This question is related to the applicant's response to RAI 02.03.01-22. The staff has considered the response to RAI 02.03.01-22 and is concerned that the existing presentation of temperature data in FSAR Tier 1, Table 5.0, Tier 2, Sections 2.3S.1.5 and 2.3S.2.2.5, and Tier 2, Table 2.0-2, does not satisfy the requirements of 10 CFR 52.79(a)(1)(iii).

a. Revise FSAR Tier 2, Section 2.3S.1.5, to include the Palacios maximum recorded and 100-year return period dry-bulb and wet-bulb temperature site characteristic values presented in the response to RAI 02.03.01-8b.

b. Revise FSAR Tier 2, Section 2.3S.2.2.5, to include the Palacios wet-bulb, dew-point, and relative humidity data presented in the response to RAI 02.03.02-4b.

c. Revise FSAR Tier 2, Table 2.0-2, to include the 0% exceedance maximum dry-bulb ambient design temperature site characteristic value based on the higher of either the maximum recorded dry-bulb value or the maximum 100-year return period dry-bulb value for either Palacios or Victoria. Provide an estimate of the concurrent wet-bulb value based on the resulting dry-bulb value.

d. Revise FSAR Tier 1, Table 5.0, and Tier 2, Table 2.0-2, to include the 0% exceedance maximum non-concurrent wet-bulb ambient design temperature site characteristic value based on the higher of either the maximum recorded non-coincident wet-bulb value or the 100-year return period non-coincident wet-bulb value for either Palacios or Victoria.

e. Revise FSAR Tier 2, Table 2.0-2, to include the 0% exceedance minimum dry-bulb ambient design temperature site characteristic value based on the lower of either the minimum recorded dry-bulb value or the minimum 100-year return period dry-bulb value for either Palacios or Victoria.

The response to RAI 02.03.01-22 states the meteorological data used for the UHS analysis is outside the scope of RAI 02.03.01-22. The staff agrees with this statement.

The applicant has chosen to list in FSAR Tier 2, Table 2.0-2, the maximum recorded data from Victoria as the STP 3 & 4 maximum dry-bulb and coincident wet-bulb 0%

exceedance (historical limit) site characteristic values. Similarly, the applicant has chosen to list in FSAR Tier 2, Table 2.0-2, the minimum recorded datum from Victoria as the STP 3 & 4 minimum dry-bulb 0% exceedance (historical limit) site characteristic value. The staff agrees with the applicant that data from Victoria are appropriate for use in representing these particular site characteristic values because the data for Victoria bound the data for Palacios. However, the applicant states in its response to RAI 02.03.01-22 that because the ABWR DCD Tier 1, Table 5.0, and Tier 2, Table 2.0-1, define 0% exceedance as an historical limit, there is no requirement in the ABWR DCD for the STP COL application to use 100-year return period temperatures as site characteristic values. The staff believes otherwise, for the reason cited below.

10 CFR 52.79(a)(1)(iii) states the COL FSAR shall include "the seismic, meteorological, hydrologic, and geologic characteristics of the proposed site with appropriate consideration of the most severe of the natural phenomena that have been historically reported for the site and surrounding area and with sufficient margin for the limited accuracy, quantity, and time in which the historical data have been accumulated." The ABWR DCD defines the 0% exceedance ambient design temperature site parameters as historical limits. 10 CFR 52.79(a)(1)(iii) states that the most severe temperatures reported for the site and surrounding area as historical limits shall include sufficient margin for the limited accuracy, quantity, and time in which the historical data have been accumulated. The staff considers temperatures based on a 100-year return period to provide sufficient margin for the limited accuracy, quantity, and period of time in which the historical data have been accumulated as required by the regulation. This is why SRP 2.3.1 states that 100-year return period ambient temperature and humidity statistics should be identified as site characteristics. Thus, the staff believes the higher of either the maximum recorded dry-bulb value or the maximum 100-year dry-bulb value should be listed as the 0% exceedance maximum dry-bulb site characteristic value. Similarly, the lower of either the minimum recorded dry-bulb value or the minimum 100-year dry-bulb value should be listed as the 0% exceedance minimum dry-bulb site characteristic value.

The applicant has also chosen to list in FSAR Tier 2, Table 2.0-2, the maximum recorded datum from Victoria to represent the 0% exceedance (historical limit) maximum non-coincident wet-bulb site characteristic values for STP 3 & 4. The staff believes data from Palacios are more appropriate for use in representing this particular site characteristic value for the reason cited below.

In its response to RAI 02.03.01-22, the applicant states that it has concluded that temperature data from Palacios are more appropriate than the data from Victoria for use as the design basis for STP 3 & 4 HVAC systems. Nonetheless, the applicant also states that it used data from Victoria to calculate the 0% exceedance non-coincident wet-bulb temperatures because regulatory guidance specifies the minimum requirements for the amount of historical data necessary to develop the required projections and the minimum required amount of historical data were not available for Palacios. When referring to the specified minimum requirements for the amount of historical data necessary to develop the required projections, the staff believes the applicant is referring to RG 1.27 and SRP 2.3.1 which both state, in part, that UHS meteorological data should be compiled from at least 30 years of meteorological data found in databases for nearby representative locations. Not withstanding that the above guidance is applicable to meteorological data used for the UHS analysis which is outside the scope of this question, the staff does not interpret the above guidance to mean that

regional climatological measurements that are considered to be representative of the site (i.e., Palacios) should be excluded just because the minimum required amount of historical data (e.g., 30 years) is not available. In its response to RAI 02.03.01-8b, the applicant provided 0% exceedance (maximum recorded and maximum 100-year return period) values from 20 years of recent Palacios data. These Palacios data should be supplemented by data from other representative sites (e.g., Victoria) that have a recent period of record at least 30 years in length and the more conservative (bounding) data should be chosen as site characteristic values.

The applicant also states the following in its response to RAI 02.03.01-22:

> Selecting the maximum dry-bulb temperature based on Victoria data and the maximum (coincident) wet-bulb temperature based on Palacios for determination of HVAC design requirements is not appropriate because HVAC loading is based on "coincident" wet-bulb and dry-bulb conditions. Mixing the maximum values for dry-bulb temperature at one geographic location and point in time with wet-bulb temperatures from a different geographic location and different point in time is not a valid predictor of the actual conditions.

The staff agrees with this statement and is therefore revising its information request to ask that the 0% exceedance maximum dry-bulb and concurrent wet-bulb values be selected at the same location.

Regardless of whether or not any given ABWR site parameter was used as a basis for the design of a SSC, the staff believes the applicant should update FSAR Tier 2, Table 2.0-2, to include all the pertinent ambient design temperature site characteristics discussed in FSAR Section 2.3S.1.5 and the response to RAI 02.03.01-8b. These site characteristic values could potentially be used by the COL holder as a design-basis for modifying existing or installing new SSCs. Additionally, 10 CFR 52.79(d) states, in part, that if a COL application references a standard design certification, then the COL FSAR must contain information sufficient to demonstrate that all the site characteristics fall within the site parameters specified within the site parameters specified in the design certification.

Request for Additional Information No. 3547 Revision 2

South Texas Project Units 3 and 4
South Texas Project Nuclear Operating Co
Docket No. 52-012 and 52-013
SRP Section: 02.03.04 - Short Term Atmospheric Dispersion Estimates for Accident Releases
Application Section: FSAR Section 2.3S.4

QUESTIONS for Siting and Accident Conseq Branch (RSAC)

02.03.04-***

This question is related to the applicant's revised response to RAI 02.03.04-5 submitted via letter U7-C-STP-NRC-090082 dated July 30, 2009.

The revised response to RAI 02.03.04-5 stated the exclusion area boundary (EAB) and outer boundary to the low population zone (LPZ) atmospheric dispersion factors (X/Q values) are being revised based on a "slightly larger" power block footprint.

a. Provide a plot plan showing the two power block footprints used to develop the EAB and LPZ X/Q values presented in (1) the original response to RAI 02.03.04-5 dated January 28, 2009 and (2) the revised response to RAI 02.03.04-5 dated July 30, 2009.

b. Explain how a "slightly larger" power block footprint resulted in (1) longer distances to the LPZ boundary in the southwest clockwise to north-northeast sectors and (2) lower resulting maximum LPZ X/Q values.

c. The revised RAI response states the third paragraph of FSAR Section 2.3S.4.2.1.1 will be revised, in part, to read as follows:

> The PAVAN-predicted maximum 0-2 hours EAB X/Q (<u>2.74E-04</u>) is lower than the corresponding reference ABWR DCD EAB X/Q value (1.37E-03). Similarly, the PAVAN-predicted maximum 0-2 hours LPZ X/Q value (<u>5.27E-05</u>) is lower than the corresponding reference ABWR DCD LPZ X/Q value (4.11E-04).

The PAVAN-predicted maximum 0-2 hours EAB and LPZ X/Q values listed above (2.74E-04 and 5.27E-05) differ from those X/Q values listed in the proposed revision to FSAR Table 2.0-2 as STP 3 & 4 Site Characteristic Values (1.62×10^{-4} and 3.99×10^{-5}) for comparison to the ABWR DCD EAB and LPZ X/Q values. Explain this apparently discrepancy and update the FSAR as necessary.

Request for Additional Information No. 3548 Revision 2

South Texas Project Units 3 and 4
Southern Nuclear Operating Co.
Docket No. 52-012 and 52-013
SRP Section: 02.03.05 - Long-Term Atmospheric Dispersion Estimates for Routine Releases
Application Section: FSAR Section 2.3S.5

QUESTIONS for Siting and Accident Conseq Branch (RSAC)

02.03.05-***

This question is related to the applicant's revised response to RAI 02.03.04-5 submitted via letter U7-C-STP-NRC-090082 dated July 30, 2009.

The revised response to RAI 02.03.04-5 stated the long-term (routine release, annual average) atmospheric dispersion factors (X/Q values) and deposition factors (D/Q values) are being revised based on a release from either the Unit 3 or Unit 4 Reactor Building stack instead of the power block envelope. The revised RAI response also presented for the first time maximum annual X/Q and D/Q values for the site boundary as well as the exclusion area boundary (EAB).

Revise the FSAR to provide the downwind distances to the site boundary and EAB in each sector that were used to derive the revised set of maximum annual site boundary and EAB X/Q and D/Q values.