

BellBendCOLPEm Resource

From: Canova, Michael
Sent: Thursday, April 08, 2010 3:44 PM
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Cc: BellBendCOL Resource; Colaccino, Joseph; Brown, David; Samaddar, Sujit
Subject: Bell Bend COLA - Request for Information - Final Letter Nos. 93 and 94 (RAI Nos. 93 and 94) - NSIR-LIB 4443, 4445
Attachments: Final RAI Letter 93 - RSAC 4443.doc; Final RAI Letter 94 - RSAC 4445.doc

Attached is RAI Nos. [93](#) and [94](#) for the Bell Bend COL Application. Based [our discussion on April 5, 2010](#), we understand you have no [further](#) questions on this RAI. You are requested to respond to this request [on or before 5/25/2010](#). If additional time is required to respond, please inform me of your proposed schedule to respond at your earliest opportunity.

If you have any questions, please contact me.

Michael A. Canova

Project Manager - Bell Bend COL Application
Docket 52-039
EPR Project Branch
Division of New Reactor Licensing
Office of New Reactors
301-415-0737

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Request for Additional Information No. 93
Application Revision 1

4/6/2010

Bell Bend
PPL Bell Bend LLC.
Docket No. 52-039
SRP Section: 02.03.01 - Regional Climatology
Application Section: FSAR Section 2.3.1

QUESTIONS for Siting and Accident Consequence Branch (RSAC)

02.03.01-1

For COL applications, 10 CFR 52.79(a) states that “the application must contain a final safety analysis report that describes the facility, presents the design bases and the limits on its operation, and presents a safety analysis of the structures, systems, and components of the facility as a whole. The final safety analysis report shall include the following information, at a level of information sufficient to enable the Commission to reach a final conclusion on all safety matters that must be resolved by the Commission before issuance of a combined license:

(10 CFR 52.79(a)) (iii) 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.”

As stated in RG 1.206, Section C.I.2.3.1.2, applicants “should provide annual (and seasonal, if available) frequencies of severe weather phenomena, including hurricanes, tornadoes and waterspouts, thunderstorms, severe wind events, lightning, hail (including probable maximum size), and high air pollution potential.”

In Section 2.3.1.2.2 of the FSAR, the applicant states that data for several severe weather phenomena, including droughts, and dust/sand storms, were obtained from the NCDC “Storm Events” database. For these events, revise the FSAR to remove reference to having searched the database starting in “January 1, 1950.” For these events, the NCDC database is not populated with information prior to 1993.

02.03.01-2

For COL applications, 10 CFR 52.79(a) states that “the application must contain a final safety analysis report that describes the facility, presents the design bases and the limits on its operation, and presents a safety analysis of the structures, systems, and

components of the facility as a whole. The final safety analysis report shall include the following information, at a level of information sufficient to enable the Commission to reach a final conclusion on all safety matters that must be resolved by the Commission before issuance of a combined license:

(10CFR 52.79(a)) (iii) 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.”

In accordance with RG 1.206, section C.1.2.3.1.2, “Regional Meteorological Conditions for Design and Operating Bases,” item 2, the applicant should provide the meteorological data used to evaluate the performance of the ultimate heat sink (UHS), with respect to maximum evaporation and drift loss, minimum water cooling, and if applicable, the potential for water freezing in the UHS water-storage facility (See RG 1.27, "Ultimate Heat Sink for Nuclear Power Plants"); identification of the period of record examined and a description of and justification for the bases and procedures used to select the critical meteorological data.”

In FSAR Section 2.3.1.2.2.13, the applicant provided a number of temperature statistics, including: (1) a maximum one-hour dry bulb temperature; (2) several temperature values determined by the American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) using 30 years of meteorological data from Wilkes-Barre/Scranton, PA. However, these values are statistically derived instantaneous temperature values, and it is not clear how the applicant used these values to evaluate the performance of the UHS. In addition, the applicant did not identify site characteristic temperature values for the UHS to compare with site parameter values in the U.S. EPR FSAR Tables 2.1-3 and 2.1-4. It is also not clear how the description in BBNPP FSAR Section 2.3.1.2.2.13 regarding the potential for water freezing in the UHS cooling tower basins relates to the description of ice potential in FSAR Section 2.4.7. The description in FSAR Section 2.4.7 addresses COL Information Item 2.4-8 from U.S. EPR FSAR Table 1.8-2, which states that an application referencing the U.S. EPR design certification will need to evaluate the possibility for freezing temperatures that may affect the performance of the UHS makeup, including the potential for frazil and anchor ice, maximum ice thickness, and maximum cumulative degree-days below freezing. The applicant should revise the FSAR to: (1) provide the meteorological data used to evaluate the performance of the ultimate heat sink (UHS); (2) identify the period of record examined; and (3) provide a description of and justification for the bases and procedures used to select the critical meteorological data.

02.03.01-3

For COL applications, 10 CFR 52.79(a)(iii) states that “the application must contain a final safety analysis report that describes the facility, presents the design bases and the limits on its operation, and presents a safety analysis of the structures, systems, and components of the facility as a whole. The final safety analysis report shall include the following information, at a level of information sufficient to enable the Commission to reach a final conclusion on all safety matters that must be resolved by the Commission before issuance of a combined license: (. . .) (iii) 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.”

In accordance with RG 1.206, section C.1.2.3.1.2, “Regional Meteorological Conditions for Design and Operating Bases,” the applicant should provide ambient temperature and humidity statistics for use in establishing heat loads for the design of plant heat sink systems and plant heating, ventilation, and air conditioning (HVAC) systems. In FSAR Section 2.3.1.2.2.16, the applicant provided site-specific monthly 0% and 1% exceedance values for dry bulk and wet bulb temperature, stating that the values presented in Table 2.1-1 of the U.S. EPR Final Safety Analysis Report are bounded. However, it is not clear whether the site parameter values presented in Table 2.1-1 of the U.S. EPR Final Safety Analysis Report are monthly, seasonal or annual values. Therefore, the staff requests that the applicant clarify whether site parameter values to which site characteristic values in FSAR Section 2.3.1.2.2.16 are compared are monthly, seasonal or annual values.

02.03.01-4

Standard Review Plan (SRP) Section 2.3.1, Section II (Acceptance Criteria), SRP Acceptance Criterion (2) states, in part, that the applicability of data on severe weather phenomena used to represent site conditions during the expected period of reactor operation should be substantiated. SRP Section 2.3.1, Section III (Review Procedures), Item 2, Paragraph 2 states, in part, that “[t]he historical data used to characterize a site should extend over a significant time interval to capture cyclical extremes” and that “[c]urrent literature on possible changes in the weather in the site region should also be reviewed to be confident that the methods used to predict weather extremes are reasonable”.

Revise COL FSAR Section 2.3.1 to include a discussion on possible changes in climate conditions in the site region during the expected period of reactor operation and any potential impact on the proposed climate-related site characteristics addressed in COL FSAR Section 2.3.1 or other related FSAR sections that utilize this information.

Request for Additional Information No. 94
Application Revision 1

4/6/2010

Bell Bend
PPL Bell Bend LLC.
Docket No. 52-039

SRP Section: 02.03.03 - Onsite Meteorological Measurements Programs
Application Section: FSAR Section 2.3.3

QUESTIONS for Siting and Accident Consequence Branch (RSAC)

02.03.03-3

As stated in Standard Review Plan (SRP) Section 2.3.3, SRP Acceptance Criteria (1a) and (1b), and Regulatory Guide 1.206, Section C.I.2.3.3, the staff requests that additional information be added to FSAR Section 2.3.3 regarding the physical parameters of the potential obstructions to the pre-operational and operational towers. Listed obstructions should include the salt storage building, reactor building, turbine building, domestic water storage tank, emergency diesel generator (EDG) building, service and administration building, and parameters should include grade elevation, height, width, distance and wind direction sector relative to meteorological towers, including width at top and bottom of cooling tower. Also, for the proposed operational tower, please include both the northern and southern tree lines and grade elevations for each obstruction listed in the tables.

02.03.03-4

Regulatory Guide (RG) 1.23, Regulatory Position C.3., provides guidance on positioning wind sensors on towers. During a BBNPP meteorological site audit July 21-22, 2009, the applicant stated that the rationale for the original orientation of the instruments on the Susquehanna Steam Electric Station (SSES) meteorological tower is unknown because they were placed there in the 1970s. The staff requests that the applicant update Final Safety Analysis Report (FSAR) Sections 2.3.3.1.3 and 2.3.3.2.3 to include information related to the orientation of instruments for the SSES and BBNPP towers as regards the guidance in RG 1.23.

02.03.03-5

FSAR Section 2.3.3.2.2, "Tower Design," (for the new BBNPP operational tower) includes a one-sentence cross-reference to Section 2.3.3.1.2, which is a description of the SSES pre-operational tower. Please revise FSAR Section 2.3.3.2.2 to include a more complete description of the planned operational tower design for BBNPP, including the type of equipment that will be used in the new tower.

02.03.03-6

Both FSAR Section 2.3.3.1.3, "Instrumentation" (for the Pre-Application and Pre-operational Meteorological Measurement Program) and FSAR Section 2.3.3.2, "Operational Meteorological Measurement Program," state that Table 2.3-144 presents information on the SSES pre-operational and BBNPP operational meteorological tower instrument specifications, respectively. However, FSAR Section 2.3.3.1.7, "Deviations from Guidance from Regulatory Guide 1.23," (describing the pre-operational program) states that the resolution of the existing (SSES) sensors does not meet the measurement resolution recommended in Regulatory Guide 1.23, Revision 1, whereas FSAR Section 2.3.3.2.7, "Deviations from Guidance from Regulatory Guide 1.23," (describing the operational program) does not address measurement resolution. Please clarify whether the pre-operational and operational programs meet the meteorological system accuracies and resolutions stated in Regulatory Position C.4 of RG 1.23.