December 03, 2009

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

BELL BEND NUCLEAR POWER PLANT
PARTIAL RESPONSE TO RAI No. 33
BNP-2009-384 Docket No. 52-039

Reference: 1) M. Canova (NRC) to R. Sgarro (PPL Bell Bend, LLC), Bell Bend COLA – Request for Information No. 33 (RAI No. 33) – EEB -2793, e-mail dated August 11, 2009

2) R. Sgarro (PPL Bell Bend, LLC) to U. S. Nuclear Regulatory Commission (NRC), BNP-2009-251, Response to RAI Set No. 33, dated September 8, 2009

The purpose of this letter is to respond to the request for additional information (RAI) identified in the NRC correspondence to PPL Bell Bend, LLC (PPL) (Reference 1). This RAI addressed AC Power Systems (Onsite) as discussed in Chapter 8 of the Final Safety Analysis Report (FSAR) in the Bell Bend Nuclear Power Plant (BBNPP) Combined License Application (COLA).

In Reference 2, PPL provided responses to RAI No. 33, Questions 08.03.01-1 and 08.03.01-2 and requested an extension to provide the remaining information by December 4, 2009. Enclosure 1 to this letter provides the responses for RAI No. 33, Questions 08.03.01-3, 08.03.01-4 and 08.03.01-5. The only new regulatory commitment in this letter is to update the BBNPP COLA in a future revision.

If you have any questions, please contact the undersigned at 570.802.8102.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on December 03, 2009

Respectfully,

Rocco R. Sgarro

RRS/kw

Enclosure: As stated
cc:  (w/o Enclosures)

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Enclosure 1

Response to NRC Request for Additional Information No. 33
Bell Bend Nuclear Power Plant
Question 08.03.01-3:

FSAR Section 8.3.1.1.3, Electric Circuit Protection & Coordination, indicates that 'No departures or supplements' have been made. However, at BBNPP FSAR Section 8.2.2.4, page 8-13, the Applicant states that "The design of the on-load tap changers for each [emergency auxiliary transformer] EAT will ensure that the downstream EPSS 6.9 kV buses will have sufficient voltage to preclude degraded voltage protection... as described in the Section 8.3.1.1.3". Confirm if this reference to "Section 8.3.1.1.3" pertains to the U.S. EPR Design Control Document or the Bell Bend Nuclear Power Plant (BBNPP) FSAR.

Response:

It is confirmed that Section 8.3.1.1.3 pertains to U.S. EPR Design Control Document, which is designated as the U.S. EPR FSAR. The BBNPP FSAR will be revised to clarify the referenced section source.

COLA Impact

The BBNPP FSAR will be revised as follows:

8.2.2.4 Compliance with GDC 17

Based on the results of the System Voltage Study the grid will not be lost due to the loss of the largest generating unit (i.e., BBNPP) or the loss of the most critical transmission line or the loss of the largest load on the grid. The design (i.e., tap range & bus regulation voltage setting) of the on-load tap changers for each EAT will ensure that the downstream EPSS 6.9 kV buses will have sufficient voltage to preclude the degraded voltage protection scheme from separating the buses from the preferred power source as described in the U.S. EPR FSAR Section 8.3.1.1.3. A site specific system calculation will be performed to confirm the design. See Chapter 16, Technical Specifications, Section 3.3.1, for specific degraded grid voltage protection settings.
Question 08.03.01-4:

FSAR Section 8.3.1.1.8, Raceway and Cable Routing, states that the safety related EPSS distribution equipment for the ESWEMS are located in applicable division of the Seismic Category I ESWEMS Pumphouse.

Confirm whether the U.S. EPR FSAR (DCD) is incorporated by reference for the raceway & cable routing design, including load group segregation and other design aspects for the safety related ESWEMS electrical power distribution system and electrical equipment room.

Response:

It is confirmed that BBNPP incorporates by reference the U.S. EPR FSAR (DCD) Tier 2, Section 8.3.1.1.8 for the raceway and cable routing design, including load group segregation and other design aspects for the safety-related ESWEMS electrical power distribution system and electrical equipment room. FSAR Section 8.3.1.1.8 will be revised to clarify this position. Additionally, FSAR Section 8.3.1.1.9 will also be revised to clarify similar text.

COLA Impact:

The BBNPP FSAR will be revised as follows:

8.3.1.1.8 Raceway and Cable Routing

{The EPSS distribution equipment for the ESWEMS is located in the applicable division of the Seismic Category I ESWEMS Pumphouse.} The raceway and cable routing design, including load group segregation and other design aspects described in U.S. EPR FSAR, Section 8.3.1.1.8 is incorporated by reference.

8.3.1.1.9 Independence of Redundant Systems

{The EPSS distribution equipment for the ESWEMS is located in the applicable division of the Seismic Category I ESWEMS Pumphouse.} Redundant equipment independence, including cabling independence and separation, described in the U.S. EPR FSAR, Section 8.3.1.1.9 is incorporated by reference.
Question 08.03.01-5:

Regarding FSAR Section 8.3.1.3, Electrical Power System Calculation and Distribution System Studies for AC Systems:

Confirm that electrical power system calculations and studies will include the site-specific ESWEMS system with safety related equipment to analyze the plant AC distribution system.

Regarding the grounding & lightning protection system, at BBNPP, the Applicant states that the U.S. EPR FSAR Figure 8.3-4, Typical Station Grounding Grid, is applicable for Bell Bend.

(1) Describe the site-specific integrated grounding plan that includes the 500 kV BBNPP switchyard.

(2) Describe the connection interface between the switchyard and the power block grounding.

(3) In addition, provide an ITAAC to inspect for appropriate site-specific lightning protection and grounding features for the offsite power / 500kV switchyard at BBNPP.

Response:

It is confirmed that electrical system calculations and studies include the site-specific ESWEMS system with safety-related equipment.

The following provides BBNPP grounding and lightning system design and interface with the power block.

(1) BBNPP incorporates by reference U.S. EPR FSAR Tier 2, Section 8.3.1.3.8, Grounding, for the site-specific 500kV switchyard, circulating water system cooling tower area, and ESWEMS Pumphouse. The lightning protection design as described in U.S. EPR FSAR Tier 2, Section 8.3.1.3.5 is also incorporated by reference for these same structures and facilities.

(2) The BBNPP switchyard grounding grid will be connected with the Nuclear Island (NI) and power block ground grid. The switchyard ground, including conductor sizing, matrix pattern spacing, and connections with the power block ground grid is determined using regulatory guidance and industry standards as stated in U.S. EPR FSAR Tier 2, Section 8.3.1.3.8. The BBNPP FSAR Section 8.3.1.3 will be revised to describe the switchyard grounding system design and the interconnection to the NI and power block ground grid.

(3) In a previously submitted BBNPP response to RAI No. 48 (BNP-2009-368), Question 14.03.06-3, BBNPP identified the addition of ITAAC for the 500kV switchyard for both lightning and grounding protection to the BBNPP COLA Part 10, ITAAC. As noted in that response, COLA Part 10, ITAAC, Table 2.4-24-(Offsite Power System Inspections, Tests, Analyses and Acceptance Criteria) will be updated to include these ITAAC after the AREVA response to NRC RAI 275, Question 14.03.06-34 has been incorporated into U.S. EPR FSAR Tier 1, Chapter 2, Sub-section 2.5.5. These ITAAC changes are not shown in this response.
Additionally, the BBNPP COLA, Part 10, ITAAC Table 2.4-26 – (Class 1E Emergency Power Supply for Site-Specific Systems Inspections, Tests, Analyses, and Acceptance Criteria) and FSAR Section 8.3.1.3, will be revised to address grounding and lightning protection for safety-related site-specific portions (ESWEMS Pumphouse) of the AC electrical distribution system. These ITAAC changes are shown below.

**COLA Impact:**

The BBNPP COLA FSAR will be revised as follows:

**8.3.1.3 Electrical Power System Calculations and Distribution System Studies for AC Systems**

The U.S. EPR FSAR included the following conceptual design information in Section 8.3.1.3 [Typical Station Grounding Grid]]

The conceptual design information is addressed as follows:

{The above U.S.EPR FSAR conceptual design information, including U.S. EPR FSAR Figure 8.3-4, is applicable to BBNPP}. Additionally, the site-specific ESWEMS is designed with lightning protection and grounding consistent with U.S. EPR FSAR Tier 2, Section 8.3.1.3.5 and 8.3.1.3.8.

The switchyard grounding grid is interconnected with the Nuclear Island and power block ground grid. The switchyard ground grid, including conductor sizing, matrix pattern spacing, and connection with the power block ground grid is determined using the regulatory guidance and industry standards described in U.S. EPR FSAR Section 8.3.1.3.8.

The switchyard grounding grid is interconnected with the Nuclear Island and power block ground grid. The switchyard ground grid, including conductor sizing, matrix pattern spacing, and connection with the power block ground grid is determined using the regulatory guidance and industry standards described in U.S. EPR FSAR Section 8.3.1.3.8.

The BBNPP COLA, Part 10, ITAAC will be revised as follows:

**Table 2.4-26- (Class 1E Emergency Power Supply Components for Site-Specific Systems Inspections, Tests, Analyses, and Acceptance Criteria)**

<table>
<thead>
<tr>
<th>Commitment Wording</th>
<th>Inspection, Test or Analysis</th>
<th>Acceptance Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>5  Electrical grounding exists for the ground bus of the ESWEMS Pumphouse motor control center.</td>
<td>Inspections will be conducted of the as-installed equipment.</td>
<td>A report exists and concludes that the as-built electrical grounding for the ground bus of the ESWEMS Pumphouse motor control center is in accordance with the design drawings and documentation.</td>
</tr>
<tr>
<td>6  Electrical grounding exists for the neutral point of the ESWEMS distribution</td>
<td>Inspections will be conducted of the as-installed equipment.</td>
<td>A report exists and concludes that the as-built electrical grounding for neutral point of</td>
</tr>
<tr>
<td></td>
<td>Lightning protection exists for the ESWEMS Pumphouse.</td>
<td>Inspections will be conducted of the as-installed equipment.</td>
</tr>
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<td>---------------------------------------------------------</td>
</tr>
<tr>
<td>7</td>
<td>Lightning protection exists for the ESWEMS Pumphouse.</td>
<td>Inspections will be conducted of the as-installed equipment.</td>
</tr>
<tr>
<td>8</td>
<td>ESWEMS Pumphouse lightning protection system is connected to the grounding grid.</td>
<td>Inspections will be conducted of the as-installed equipment.</td>
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