



April 7, 2010

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

**BELL BEND NUCLEAR POWER PLANT  
PARTIAL RESPONSE TO RAI No. 75  
AND REQUEST FOR EXTENSION  
BNP-2010-086      Docket No. 52-039**

- References:
- 1) M. Canova (NRC) to R. Sgarro (PPL Bell Bend, LLC), Bell Bend COLA – Request for Information No. 75 (RAI No. 75) – SEB1-2505, e-mail dated March 11, 2010.
  - 2) T. L. Harpster (PPL Bell Bend, LLC) to U.S. Nuclear Regulatory Commission Document Control Desk, BNP-2009-400, "BBNPP Schedule Update," dated December 8, 2009.

The purpose of this letter is to respond to portions of the request for additional information (RAI) identified in the referenced NRC correspondence to PPL Bell Bend, LLC (PPL) and request an extension for the remainder of the Sub-questions. This RAI addresses Concrete and Steel Internal Structures of Steel or Concrete Containments as discussed in Chapter 3 of the Final Safety Analysis Report (FSAR) and submitted in Part 2 of the Bell Bend Nuclear Power Plant (BBNPP) Combined License Application (COLA).

The enclosure provides our response to RAI No. 75, Question 03.08.03-1, Sub-question 3.

As the staff is aware, PPL is revising the footprint of the proposed BBNPP within the existing project boundary. This re-location may change site-specific characteristics, such as Ground Motion Response Spectra (GMRS), Foundation Input Response Spectra (FIRS), Soil-Structure Interaction (SSI) and groundwater elevation.

The following Sub-questions from RAI No. 75 are anticipated to be impacted by the re-location of the plant footprint:

03.08.03-1, Sub-questions 1, 2, 4 and 5

This re-location will result in supplemental COLA information being submitted to the NRC, and will include information necessary to address these Sub-questions regarding FSAR Section 3.8. PPL is currently in the process of updating the schedule information previously provided to the staff in Reference 2, and will update the staff upon completion.

D079  
NRD

Should you have questions or need additional information, please contact the undersigned at 570.802.8102.

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

Executed on April 7, 2010

Respectfully,

  
Rocco R. Sgarro

RRS/kw

Enclosure: As stated

cc: (w/o Enclosures)

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Enclosure

Response to NRC Request for Additional Information No. 75  
Question 03.08.03-1, Sub-question 3  
Bell Bend Nuclear Power Plant

**Question 03.08.03-1:**

For COL information item COL 3.8(2) in the BBNPP COL FSAR, Subsection 3.8.3.3, "Loads and Load Combinations" (SRP Section 3.8.3), the applicant states in the third paragraph (Page 3-177) that "Site specific RCB [Reactor Containment Building] internal structures design loads have been confirmed to lie within the standard U.S. EPR design certification envelope with the exception of design loads resulting from the BBNPP site specific seismic response spectra and soil profiles described in Section 3.7.1. Additional confirmatory evaluations for the site specific seismic response spectra have been performed as noted below and confirm that the RCB internal structures are acceptable for the BBNPP site:

- BBNPP site specific NI Common Base Mat Structure foundation soil spring values are enveloped by the standard U.S. EPR design certification soil spring values.
- BBNPP site specific NSSS support loads are enveloped by the standard U.S. EPR design certification NSSS support loads.
- The BBNPP site specific ZPA values for the RCB internal structures are enveloped by the standard U.S. EPR design certification ZPA values for the RCB internal structures."

Also, in BBNPP COL FSAR, Subsection 3.7.1.1.1, "Design Ground Motion Response Spectra", the first paragraph (Page 3-33) states "A comparison of the BBNPP GMRS versus the CSDRS for five percent damping anchored at 0.30g is shown in Figure 3.7-1 and Figure 3.7-2. As shown, the CSDRS [Certified Seismic Design Response Spectra] are exceeded by the BBNPP GMRS in both the horizontal and vertical directions."

The applicant is requested to provide the following information:

1. Provide the technical basis that supports the conclusion that the three additional evaluations listed in the first paragraph quoted above (the three bullets) demonstrate that the response of the RCB internal structures for BBNPP is enveloped by that of U.S. EPR.
2. The elevation of the water table is about 30 ft. above the elevation of the bottom of the NI foundation basemat. The SSI analysis performed in US-EPR does not appear to have considered the effect of this high water table.  
Provide the technical basis that supports the conclusion that the effect of high water table is negligible, and that the results of US-EPR are applicable to BBNPP RCB internal structures.
3. Are there equipment items that are sensitive to high frequency excitations? If so, describe these and describe how they are designed to accommodate the seismic loads.
4. In BBNPP COL FSAR, Subsection 3.7.1.1 under the title of "Reactor Coolant System" (first paragraph in Page 3-31), the applicant states that "BBNPP site-specific time history analyses are performed to approximately 40 seconds using input at 0.005 second intervals. Sensitivity evaluation confirms the integration time step used, 0.0005 seconds, is adequate."

Explain how the time histories used in these analyses were generated? Provide damping values assumed for the structures in these analyses.

5. In BBNPP COL FSAR, Subsection 3.7.1.1 under the title of "RPV Internals" (Page 3-31), the applicant states that "Site-specific time histories are developed from the site specific GMRS/FIRS and the site-specific best estimate, lower bound, and upper bound soil profiles."

Provide information for these site-specific time histories, their duration, time steps, and the target response spectra to which they are matched.

**Response:**

Sub-question 3:

In the AREVA Response to U.S. EPR FSAR RAI 248, Supplement 3, Question 03.07.02-44 [ML093521711], AREVA committed to revising the U.S. EPR design response spectra to include the BBNPP Ground Motion Response Spectra (GMRS) as a part of the Certified Seismic Design Response Spectra (CSDRS). AREVA will submit the information and U.S. EPR FSAR changes related to the new CSDRS in response to U.S. EPR FSAR RAI 320.

Once AREVA has submitted the new CSDRS and this information has been incorporated into the U.S. EPR FSAR, BBNPP will incorporate the revised U.S. EPR FSAR information by reference and will no longer have exceedances to the CSDRS. The high frequency content of the revised CSDRS curve will be considered as a part of the Seismic Qualification of equipment.

The US EPR FSAR, as amended in the AREVA Response to U.S. EPR FSAR RAI 161, Supplement 1, Question 03.10-18 (submitted to the NRC on 10/27/2009), in Tier 2, Section 3.10.1.1 states that:

"seismic qualification testing will be done once for an envelope of the in-structure response spectra resulting from the entire set of certified seismic design response spectra (CSDRS), including ground motions for the COL sites with high frequency content."

As stated above, the U.S. EPR FSAR CSDRS will incorporate BBNPP GMRS and, therefore, equipment listed in Table 3.10-1 of the U.S. EPR FSAR "List of Seismically and Dynamically Qualified Mechanical and Electrical Equipment" will be designed to the BBNPP seismic input as part of the Design Certification. Additionally, the site-specific mechanical and electrical equipment listed in BBNPP FSAR Table 3.10-1, "Site-Specific Seismic and Dynamic Qualifications of Mechanical and Electrical Equipment", will be designed to the BBNPP seismic input.

**COLA Impact:**

The BBNPP COLA will not be revised as a result of this response.