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April 22, 2010

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

**BELL BEND NUCLEAR POWER PLANT
RESPONSE TO RAI No. 90
BNP-2010-105 Docket No. 52-039**

- References:
- 1) M. Canova (NRC) to R. Sgarro (PPL Bell Bend, LLC), Bell Bend COLA – Request for Information No. 90 (RAI No. 90) – SEB1-2508, email dated March 11, 2010
 - 2) BNP-2010-089, R. Sgarro (PPL Bell Bend, LLC) to U.S. NRC Document Control Desk, "Partial Response to RAI No. 90 and Request for Extension," dated April 12, 2010

The purpose of this letter is to respond to the request for additional information (RAI) identified in the referenced NRC correspondence to PPL Bell Bend, LLC (PPL). This RAI addresses Foundations 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).

Reference 2 provided our response to Questions 03.08.05-1, 2, 3, 6, 10, and 11 and identified other questions as being impacted by the relocation of the plant footprint.

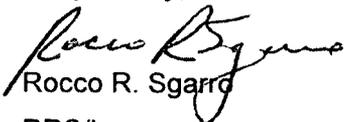
In Reference 2, PPL indicated that the response to Question 03.08.05-9 would be submitted by April 30, 2010. The enclosure provides our response to Question 03.08.05-9, which includes revised COLA text which will be updated in a future COLA revision. The only commitment in this letter is to update the COLA at a future date.

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 22, 2010

Respectfully,


Rocco R. Sgarro

RRS/kw

Enclosure: As stated

D079
U10

cc: (w/o Enclosures)

Mr. Samuel J. Collins
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Enclosure

Response to NRC Request for Additional Information No. 90
Question 03.08.05-9
Bell Bend Nuclear Power Plant

Question 03.08.05-9

For COL information item COL 3.8 (16) in the BBNPP COL FSAR, Subsection 3.8.5.7, "Testing and Inservice Inspection Requirements," Page 3-192 (SRP Section 3.8.5), the applicant states in the 4th paragraph that "The settlement monitoring program employs conventional monitoring methods using standard surveying equipment and concrete embedded survey markers. Survey markers are embedded in the concrete structures during construction and located in conspicuous locations above grade for measurement purposes throughout the service life of the plant as necessary. Actual field settlement is determined by measuring the elevation of the marker relative to a reference elevation datum. The reference datum selected is located away from areas susceptible to vertical ground movement and loads. If field measured settlements are found to be trending greater than expected values, an evaluation will be conducted."

- (1)
 - (a) Provide the installation procedures that will be utilized to properly set the "survey markers" to assure that the bench mark elevation value will remain stable over the 60 year service life of the plant.
 - (b) Provide a comparison of these proposed procedures with those in the Installation of survey Bench Marks as provided in NOAA (National Oceanic and Atmospheric Administration) Manual NOS NGS 1 Geodetic Bench Marks (U.S. DEPARTMENT OF COMMERCE, National Oceanic and Atmospheric Administration, National Ocean Survey, Rockville Md.)
- (2)
 - (a) Describe how the reference datum markers are installed and supported.
 - (b) If the trend of the actual field measured settlements exceeds expected values what are the possible corrective actions that might be indicated, and how would they be implemented?

Response:

(1)

BBNPP will install settlement concrete survey markers in accordance with the procedures provided in NOAA (National Oceanic and Atmospheric Administration) Manual NOS NGS 1 Geodetic Bench Marks. Installation procedures will be developed in accordance with the PPL Bell Bend, LLC QAPD (PPL Bell Bend LLC, COLA Part 11a).

(2)

- (a) Installation of the reference datum marker will also be installed and supported in accordance with NOAA Manual NOS NGS 1 Geodetic Bench Marks, as described in the aforementioned response to (1).
- (b) The time rate of settlement and resultant deformed shape of the basemat is principally affected by the soil characteristics and construction loading sequence. The design of the basemat and superstructure provides for an expected maximum differential settlement identified in BBNPP FSAR Table 2.0-1. The settlement monitoring program trends the actual settlement during construction and allows a comparison of the measured settlement against the design limits. If adverse settlement trends are encountered, an evaluation will be conducted and the construction sequence will be adjusted to maintain the differential settlement within design limits.

Reinforcing steel has been provided in the design for differential settlement and the remaining rebar is provided to support the structure in the final condition. During construction, it is feasible that the short term differential settlement limit may be exceeded without overstressing the reinforcement because the final loads do not co-exist at that specific period. This condition is acceptable providing: (1) the basemat stress does not exceed code allowables and (2) the final deformed shape when all loads are present is less than the maximum differential settlement considered in the design. If the differential settlement limit is exceeded, then the condition is to be identified and the basemat analyzed to assure that the structure remains within code allowables for the construction loading condition. The corrective action plan is to include the adjustments as necessary to re-establish the deformed shape of the basemat to its as-analyzed condition or provide for additional reinforcement/soil stabilization to assure that the as-built structure remains within design code limits.

The BBNPP FSAR will be revised as shown below.

COLA Impact:

BBNPP FSAR, Section 3.8.5.7 and 3.8.6 will be revised as follows.

3.8.5.7 Testing and Inservice Inspection Requirements

The U.S. EPR FSAR includes the following COL Items in Section 3.8.5.7:

A COL applicant that references the U.S. EPR design certification will identify if any site-specific settlement monitoring requirements for Seismic Category I foundations are required based on site-specific soil conditions.

A COL applicant that references the U.S. EPR design certification will describe the program to examine inaccessible portions of below-grade concrete structures for degradation and monitoring of groundwater chemistry.

These COL Items are addressed as follows:

{Although settlement and differential settlement of foundations are not likely to affect the structures, systems, and components that make up the standard plant U.S. EPR due to the robust design of all Seismic Category I structures, a site-specific settlement monitoring program is provided as a prudent measure of confirmation between expected or predicted settlement and actual field measured settlement values.

The settlement monitoring program employs conventional monitoring methods using standard surveying equipment and concrete embedded survey markers. Survey markers are embedded in the concrete structures during construction and located in conspicuous locations above grade for measurement purposes throughout the service life of the plant as necessary. Actual field settlement is determined by measuring the elevation of the marker relative to a reference elevation datum. The reference datum selected is located away from areas susceptible to vertical ground movement and loads. The settlement concrete survey markers and the reference datum marker will be installed in accordance with NOAA (National Oceanic and Atmospheric Administration) Manual NOS NGS 1 Geodetic Bench Marks (NOAA, 1978).

If field measured settlements are found to be trending greater than expected values, an evaluation will be conducted and sequencing will be adjusted as necessary to maintain the differential settlement to a value less than that considered in the design. If the

maximum differential settlement is exceeded during construction then the basemat is to be evaluated for the current loading condition to assure that the structure remains within code allowables and a corrective action plan will be established to decrease the local curvature to a settlement less than the maximum differential settlement identified in FSAR Table 2.0-1 by end of construction or additional local analyses will be provided to establish that the stress limits remain within code allowables.

The settlement monitoring program shall satisfy the requirements for monitoring the effectiveness of maintenance specified in 10 CFR 50.65 (CFR, 2008) and Regulatory Guide 1.160 (NRC, 1997), as applicable to structures.

3.8.6 REFERENCES

NOAA, 1978. NOAA Manual NOS NGS 1 Geodetic Bench Marks, U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Ocean Survey, Rockville MD, September 1978.