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February 18, 2011

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Washington, DC 20555-0001

**BELL BEND NUCLEAR POWER PLANT  
BBNPP PLOT PLAN CHANGE COLA  
SUPPLEMENT, PART 2 (FSAR); SECTION 2.3  
BNP-2011-030                      Docket No. 52-039**

- References:
- 1) BNP-2010-117, T. L. Harpster, (PPL Bell Bend, LLC) to U.S. NRC, "May 2010 BBNPP Schedule Update", dated May 7, 2010
  - 2) BNP-2010-175, T. L. Harpster (PPL Bell Bend, LLC) to U.S. NRC, "July 2010 BBNPP Schedule Update", dated July 16, 2010
  - 3) BNP-2010-155, R. R. Sgarro (PPL Bell Bend, LLC) to U.S. NRC, "Submittal of BBNPP RAI Schedule Information", dated August 4, 2010
  - 4) BNP-2010-199, R. R. Sgarro (PPL Bell Bend, LLC) to U.S. NRC, "BBNPP Plot Plan Change COLA Supplement, Part 2 (FSAR): Sections 2.2, 2.3, 3.3", dated August 18, 2010
  - 5) BNP-2010-246, R. R. Sgarro (PPL Bell Bend, LLC) to U.S. NRC, "BBNPP Plot Plan Change COLA Supplement Update", dated September 28, 2010
  - 6) BNP-2010-193, R. R. Sgarro (PPL Bell Bend, LLC) to U.S. NRC, "BBNPP Plot Plan Change COLA Supplement, Part 2 (FSAR): Section 2.3", dated August 20, 2010

In References 1, 2, 3, and 4, PPL Bell Bend, LLC (PPL) provided the NRC with schedule information related to the intended revision of the Bell Bend Nuclear Power Plant (BBNPP) footprint within the existing project boundary, which has been characterized as the Plot Plan Change (PPC). As the NRC staff is aware, the plant footprint relocation will result in changes to the Combined License Application (COLA) and potentially to new and previously responded to Requests for Additional Information (RAIs). PPL declassified the docketed schedule information from the regulatory commitment status in Reference 5, with an agreement to update staff via weekly teleconferences as the project moves forward.

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Accordingly, PPL has committed to provide the NRC with COLA supplements, consisting of revised COLA Sections and associated RAI responses/revisions, as they are developed. These COLA supplements will only include the changes related to that particular section of the COLA and will not include all conforming COLA changes. Conforming changes for each supplement necessary for other COLA sections will be integrated into the respective COLA supplements and provided in accordance with the schedule, unless the supplement has already been submitted. In the latter case, the COLA will be updated through the normal internal change process. The revised COLA supplements will also include all other approved changes since the submittal of Revision 2. All COLA supplements and other approved changes will ultimately be incorporated into the next full COLA revision.

In Reference 6, PPL Bell Bend, LLC (PPL) provided the NRC with a revised supplement for COLA FSAR Section 2.3 Revision 2a.

Enclosure 1 provides the revised BBNPP COLA Supplement, Part 2 (Final Safety Analysis Report), Section 2.3 Revision 2d. The revised BBNPP COLA section supersedes previously submitted information in its entirety.

The following departures and exemptions to the BBNPP COLA have been revised as a result of the FSAR Section 2.3 Supplement:

#### Departures

- 1.1.2 Maximum Annual Atmospheric Dispersion Factor (0.5 mile – Limiting Sector)
- 1.1.3 Accident Atmospheric Dispersion Factor (0-2 Hour, 2-8 Hour, and 8-24 Hour Low Population Zone, 1.5 miles, and 0-2 Hour Exclusion Area Boundary, 0.5 Miles)

#### Exemption Requests

- 1.2.2 Maximum Annual Atmospheric Dispersion Factor (0.5 mile – Limiting Sector)
- 1.2.3 Accident Atmospheric Dispersion Factor (0-2 Hour, 2-8 Hour, and 8-24 Hour Low Population Zone, 1.5 miles, and 0-2 Hour Exclusion Area Boundary, 0.5 Miles)

Enclosure 2 provides the response to an NRC RAI which refers directly to the enclosed COLA section. The following RAI response is included with this submittal:

<u>RAI Set No.</u>	<u>RAI Question No.</u>
94	02.03.03-3 (Partial)

The following previously submitted NRC RAI responses which refer directly to the enclosed COLA section were also reviewed for impact from the PPC:

<u>RAI Set No.</u>	<u>RAI Question No.</u>	<u>Response Impacted? (Yes/No)</u>
3	02.03.03-1	No
3	02.03.03-2	No
94	02.03.03-3 (Partial)	No—Earlier submittal was not related to PPC
94	02.03.03-4	No
94	02.03.03-5	No
94	02.03.03-6	No

The following regulatory commitments were established in Reference 6 and remain in effect:

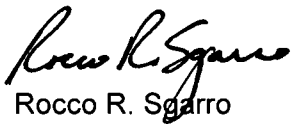
- Conforming changes for each supplement necessary for other COLA sections will be integrated into the respective COLA supplements and provided in accordance with the schedule, unless the supplement has already been submitted. In the latter case, the COLA will be updated through the normal internal change process.
- The revised COLA supplements will also include all other approved changes since the submittal of Revision 2.
- All COLA supplements and other approved changes will ultimately be incorporated into the next full COLA 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 February 18, 2011

Respectfully,



Rocco R. Sgarro

RRS/kw

- Enclosures: 1) Revised BBNPP COLA Part 2 (FSAR); Chapter 2.3, Revision 2d
- 2) Response to RAI # 94 Question 02.03.03-3 (Partial) for COLA Part 2 (FSAR), Chapter 2.3

cc: (w/o Enclosures)

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Enclosure 1

Revised BBNPP COLA Part 2 (FSAR), Chapter 2.3, Revision 2d  
(Provided on DVD)

Enclosure 2

Response to RAI #94 Question 02.03.03-3 (Partial) for COLA Part 2 (FSAR), Chapter 2.3

**Question 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.

**Response:**

The information related to the physical parameters of existing man-made potential obstructions to air flow for the pre-operational meteorological tower, which is the Susquehanna Steam Electric Station (SSES) meteorological tower, was provided in letter BNP-2010-101. The remaining information was dependent on the relocation of the facility footprint and is provided in this response. The BBNPP COLA will be revised as shown below to include the requested information.

**COLA Impact:**

The BBNPP FSAR will be revised as follows:

**2.3.3.2.1 Tower Location**

The BBNPP meteorological tower and support facilities for the operational meteorological monitoring program is are located approximately ~~3577 ft (1090 m)~~ 4,368 ft (1,331 m) ESE of the BBNPP Reactor Building. Grade at the tower is approximately 670 ft (204 m) msl. While tower grade is not the same as plant grade, it is nonetheless acceptable, as discussed in Section 2.3.3.2.7. Figure 2.3-64, presents the location of the BBNPP meteorological tower and the topography of the BBNPP site within a 1 mi (1.6 km) radius. Figure 2.3-65, Topography Within 5-Miles of the BBNPP Site, presents the general topographic features of the region.

**2.3.3.2.6 Nearby Obstructions to Air Flow**

Downwind distances from the BBNPP meteorological tower to nearby (within 0.5 mile or 0.8 km) obstructions to air flow were determined using U.S. Geological Survey topographical maps. Highest terrain is to the west and north. Lowest terrain is to the northeast through southeast (river valley). Table 2.3-146 presents the distances to nearby obstructions to air flow in each downwind sector.

~~Environmental Report Table 6.4-4 Table 2.3-185~~ presents building heights and distances from various structures to the BBNPP meteorological tower. The BBNPP cooling towers are 474 ~~475~~ ft (145 m) tall and the SSES cooling towers are 540 ft (165 m) tall. The two tallest EPR buildings are the Reactor Building 204 ft (62 m) and the Turbine Building ~~484 ft (55 m)~~ 160 ft (49 m). The Turbine Building is also the closest major building to the meteorological tower. Both buildings will be finished floor grade of approximately 674 ft ~~(205 m)~~ 720 ft (219 m) msl. Grade at the BBNPP meteorological tower is approximately 670 ft (204 m) msl. This ~~small difference in grade between finished site grade and the meteorological tower grade~~ is acceptable per Regulatory Guide 1.23, Revision 1, for the following reasons:

- It is assumed in atmospheric dispersion modeling that the plume follows the terrain; therefore, the meteorological measurements would be applicable for their primary purpose, atmospheric dispersion modeling to protect the health and safety of members of the public.
- The selected location is suitably far from man-made obstructions to air flow.
- Any potential locations closer to plant grade have significant obstructions to air flow.

#### **2.3.3.2.7 Deviations to Guidance from Regulatory Guide 1.23**

~~The only deviation to the guidance from Regulatory Guide 1.23, Revision 1 (NRC, 2007) is the criterion that the distance of any nearby obstructions are at least 10 times the height of the structure that exceeds one-half of the height of the wind measurement away from the meteorological tower. The BBNPP and SSES cooling towers do not meet this distance criterion for the BBNPP meteorological tower.~~

The BBNPP and SSES cooling towers do not meet the distance criterion of any nearby obstructions to airflow being at least 10 times the height of the structure that exceeds one-half the height of the wind measurement away from the BBNPP meteorological tower. This deviation from Regulatory Guide 1.23, Revision 1 (NRC, 2007) has minimal influence on the BBNPP meteorological tower as discussed in the study described in Section 2.3.3.2.6.

The BBNPP meteorological tower is not at the same elevation as the finished plant grade. The difference between finished plant grade and meteorological tower grade is acceptable, for the following reasons: 1) it is assumed in atmospheric dispersion modeling that the plume follows the terrain; therefore, the meteorological measurements would be applicable for their primary purpose, atmospheric dispersion modeling to protect the health and safety of members of the public, 2) the selected location is suitably far from man-made obstructions to air flow, and 3) any potential locations closer to plant grade have significant obstructions to air flow.

Table 2.3-185, Potential Man-Made Obstructions for Air Flow for the BBNPP Meteorological Tower, will be added to the FSAR. Figure 2.3-64, Topography Within 1-Mile of the BBNPP Site, and Figure 2.3-65, Topography Within 5-Miles of the BBNPP Site, will be replaced with updated figures. The new table and replacement figures are shown below.



**Table 2.3-185 {Potential Man-Made Obstructions for Air Flow for the BBNPP Meteorological Tower}**

<u>Obstruction</u>	<u>Wind Direction and Sector</u>	<u>Distance ft (m)</u>	<u>Grade/ Finished Floor Elevation ft (m)</u>	<u>Height ft (m)</u>	<u>Largest Bottom Dimension ft (m)</u>	<u>Largest Top Dimension ft (m)</u>
SSES Meteorological Tower	45 NE	4171 (1271)	650 (198)	200 (61)	N/A	N/A
SSES CWS Cooling Tower South Unit 2 (centerline)	19 NNE	3139 (957)	690 (210)	540 (165)	419 (128)	301 (92)
SSES CWS Cooling Tower North Unit 1 (centerline)	15 NNE	3823 (1165)	710 (216)	540 (165)	419 (128)	301 (92)
BBNPP CWS Cooling Tower East (centerline)	316 NW	4520 (1378)	700 (213)	475 (145)	360 (110)	202 (62)
BBNPP CWS Cooling Tower West (centerline)	310 NW	4985 (1519)	700 (213)	475 (145)	360 (110)	202 (62)
Tree line (to North of BBNPP Meteorological Tower)	357 N	260 (79)	668 (204)	79 (24)	N/A	N/A
Tree line (to South of BBNPP Meteorological Tower)	177 S	300 (91)	668 (204)	94 (29)	N/A	N/A
BBNPP Reactor Building (centerline)	300 WNW	4368 (1331)	720 (219)	204.4 (62.3)	182.87 (56)	N/A
BBNPP Turbine Building (centerline)	303 WNW	4043 (1232)	720 (219)	160 (49)	384.5 (117)	N/A
SSES Reactor Building Unit 2 (centerline) (Note 1)	28 NNE	3669 (1118)	670 (204)	203.125 (61.913)	323 (98)	N/A
SSES Turbine Building Unit 2 (centerline) (Note 1)	26 NNE	3585 (1093)	676 (206)	112.21 (34.20)	630 (192)	N/A
BBNPP Emergency Diesel Generator South	298 WNW	4141 (1262)	720 (219)	68 (21)	178 (54)	N/A
BBNPP Emergency Diesel Generator North	304 NW	4464 (1361)	720 (219)	68 (21)	178 (54)	N/A
BBNPP Service and Administration Building (Access Building)	299 WNW	4214 (1284)	720 (219)	62.67 (19.10)	119.94 (37)	N/A
SSES Emergency Diesel Generator (E)	30 NNE	4092 (1247)	656 (200)	85.5 (26.1)	80 (24)	N/A
SSES Emergency Diesel Generator (AN/AD)	27 NNE	3952 (1205)	660 (201)	75.5 (23.0)	120 (37)	N/A
SSES Service and Administration Building	26 NNE	4123 (1257)	676 (206)	66 (20)	150.5 (46)	N/A
SSES Salt Dome Storage	43 NE	4045 (1233)	655 (200)	60 (18)	60 (18)	N/A
SSES Domestic Water Storage Tank	40 NE	4234 (1291)	660 (201)	46 (14)	46 (14)	N/A

Note 1: SSES Unit 2 Reactor Building and Turbine Building are closer to the BBNPP Meteorological Tower than the Unit 1 structures

Figure 2.3-64 {Topography Within 1-Mile of the BBNPP Site}



Figure 2.3-65 {Topography Within 5-Miles of the BBNPP Site}

