

## BellBendeRAIPEm Resource

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**From:** Canova, Michael  
**Sent:** Monday, March 25, 2013 4:07 PM  
**To:** 'Sgarro, Rocco R'; 'melanie.Frailer@unistarnuclear.com'; Woodring, Kathryn L; Kirkwood, Jon K  
**Cc:** BellBendCOL Resource; Segala, John; Goldin, Laura; Andersen, James; Kang, Peter  
**Subject:** Bell Bend COLA - Final Request for Information 123 (RAI No. 123) - NRR/EEEB 6830, 6767, 6768, 6769  
**Attachments:** Final RAI Leter 123 - NRR-EEEB 6830, 6767, 6768, 6769.doc

Attached is RAI No. 123 for the Bell Bend COL Application. After our discussion on January 14, 2013, changes were made to remove information found to be appropriately referenced in the application. Our understanding is that you will require 60 days in order to address several of these questions, accordingly, please respond on or before May 17, 2013. If additional time is required to respond, please inform me of your proposed schedule your earliest opportunity.

If you have any questions, please contact me.

Thanks,

*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 123

Issue Date: 3/25/2013

Application Title: Bell Bend Docket Number 52-039

Operating Company: PPL Bell Bend LLC.

Docket No. 52-039

Review Section: 08.01 - Electric Power - Introduction

Review Section: 08.02 - Offsite Power System

Review Section: 08.03.01 - AC Power Systems (Onsite)

Application Section:

### QUESTIONS

08.01-2 (e-RAI6767)

Correct the references (i.e., Tables 8.3-13 through 8.3-16) of US EPR FSAR (Rev. 3) cited in BBNPP FSAR Section 8.1.3 (Page 8-2), as those references have been changed from Rev. 2 of US EPR FSAR thru Rev. 4.

In Figure 8.1-1 (page 8-8) and 8.2-1 (page 8-30), correct the number of circuits (i.e., five) from BBNPP 500 kV switchyard to BBNPP power block according to the latest US EPR FSAR.

08.02-11 (e-RAI 6830)

On July 27, 2012, the NRC issued Bulletin 2012-01, "Design Vulnerability in Electric Power System," (Agencywide Documents Access and Management System (ADAMS) Accession Number ML12074A115) to all holders of operating licenses and combined licenses for nuclear power reactors requesting information about the facilities' electric power system designs, in light of the recent operating experience that involved the loss of one of the three phases of the offsite power circuit (single-phase open circuit condition) at Byron Station, Unit 2 to verify compliance with applicable regulations and to determine if further regulatory action is warranted.

In order to verify the applicants of new reactors have addressed the design vulnerability identified at Byron in accordance with the requirements specified in General Design Criterion (GDC) 17, "Electric Power Systems," in Appendix A, "General Design Criteria for Nuclear Power Plants," and the design criteria for protection systems under 10 CFR 50.55a(h)(3), please provide the following information:

- Describe the protection scheme design for important to safety buses (31-34BDA) to detect and automatically respond to a single-phase open circuit condition or high impedance ground fault condition on credited offsite power circuits.
- If the important to safety buses are not powered by offsite power sources during at power condition, explain how the surveillance tests (e.g., SR 3.8.1.1) are performed to verify that a single-phase open circuit condition or high impedance ground fault condition on an off-site power circuit is detected.
- Describe the plant operating procedures including off-normal operating procedures, specifically call for verification of the voltages on all three phases of the ESF buses?

08.02-12 (e-RAI 6768)

1. In Figure 8.2-2 (Page 8-31), update the drawing to reflect the latest US EPR Rev. 3 which does not have the third normal auxiliary transformer (NAT) 30BBT03. If the NAT (30BBT03) exists no longer, update Section 8.2.1.2 (Station Switchyard) as appropriate (including revising the number of bays and removing circuit breakers 5 and 6).
2. In 8.2.2.4 (Compliance with GDC 17), COL Information Item 8.2-4 requires the applicant to provide a site-specific grid stability analysis. The applicant cited two relevant PJM studies performed for BBNPP: System Impact Study (SIS) and Stability Study (PSS), which were performed in 2008. Justify the conclusion from studies performed in 2008 still remains valid, and provide any updated information that supports the above studies.
3. In Section 8.2.2.4 addressing GDC 17 compliance, a failure mode and effects analysis (FMEA) was performed for the possibility of simultaneous failure of the 500 kV switchyard components such as line towers, conductors, switchyard, circuit breakers, and disconnect switches. In addition to GDC 17 compliance, GDC 4 requires that structures, systems, and components (SSCs) of the offsite power system be protected against dynamic effects, including the effects of missile that may result from equipment failures. The NRC noted that the FMEA did not include the gas insulated switchyard (GIS) equipment. Since the GIS equipment maintains high pressure, sudden release of pressure could result missile effects and damage to the GIS equipment. Provide the FMEA, and a site-specific ITAAC for GIS equipment, or explain why it is not necessary.

08.03.01-7 (e-RAI 6769)

Staff request following information:

1. In Figure 8.3-2 (Pages 8-42 through 8-44), update all four pages of Figure 8.3-1 as necessary based on the latest U.S EPR Rev. 4 that include site-specific equipment (essential service water emergency makeup system-ESWEMS).
2. Section 8.3.1.1.1 (Emergency Power Supply System-EPSS) describes site-specific EPSS distribution equipment. Provide design details such as ESWEMS equipment (Class 1E), power supply configuration, routing, and connection (i.e., overhead or underground)
3. DELETED
4. For Section 8.3.1.1.7 (Electrical Equipment Layout), provide electrical equipment layout drawings for the electrical components that distribute power to safety-related (Section 8.3.1.1.1- Emergency Power Supply System) and non-safety-related loads (Section 8.3.1.1.2-Normal Power Supply System) and it's physical locations with respect to Safeguard buildings, Essential Service Water pump building, ESWEMS pump house, EDG, and intake structures.

5. COL information item 8.3-2 requires developing inspection, testing, and monitoring programs to detect the degradation of inaccessible or underground power cables that support EDGs, offsite power, ESW, and other systems that are within the scope of 10 CFR 50.65. In BBNPP Section 8.3.1.1.8, it indicated that “the installation of site-specific and underground power cables (described in the US EPR FSAR that is within the scope of 10 CFR 50.65) will be tested as a part of routine maintenance. If the test finds any negative trends, the tested cables are identified and track in the corrective action process.” Explain why this is not a departure (i.e., developing programs vs. testing as a part of maintenance rule) from US EPR FSAR.