

BellBendCOLPEm Resource

From: Canova, Michael
Sent: Monday, July 13, 2009 11:13 AM
To: Sgarro, Rocco R; BBNPP@pplweb.com; jennifer.mcqueeney@unistarnuclear.com; Katie.Thurstin@unistarnuclear.com
Cc: BellBendCOL Resource; Weisman, Robert; Som, Swagata; Jenkins, Ronaldo; Steckel, James
Subject: Bell Bend COLA - Draft Request for Information No. 36 (RAI No. 36)- EEB - 2745
Attachments: Letter 36 - RAI 2745.doc

Attached is DRAFT RAI No. 36 for the Bell Bend COL Application. You have ten working days to review this request and to decide whether you need a conference call to discuss it. Please notify my of your decision in this regard.

After the call, or after ten days, the RAI will be finalized and sent to you. You will then have 30 days to respond. These durations are factored into your review schedule. If additional time is required to respond, please inform me of your proposed schedule to respond at your earliest opportunity.

If you have any questions, please contact me.

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 No.36

DRAFT

7/13/2009

Bell Bend
PPL Bell Bend LLC.
Docket No. 52-039
SRP Section: 08.02 - Offsite Power System
Application Section: 8.2

QUESTIONS for Electrical Engineering Branch (EEB)

08.02-1

Figure 8.2-2 of FSAR: 500 kV Single Line Diagram

Bell Bend Nuclear Power Plant (BBNPP) 500 kV Switchyard Single Line Diagram shows only new Bell Bend NPP configuration but does not show the connection interface to the existing Susquehanna 500 kV switchyard and new Susquehanna 500 kV Yard 2. For the staff to better understand the planned configuration of the above-mentioned switchyards and transmission systems surrounding BBNPP, the FSAR should include within its scope any significant transmission lines for BBNPP. In order for the staff to obtain a better understanding of the function of the proposed design, as required to make a safety determination with respect to General Design Criterion (GDC) 17, please provide one-line diagrams of the proposed switchyards and transmission system for BBNPP showing interconnections and modifications to the existing switchyards. The single line needs to show the transmission line configuration as shown in Figure 8.2-1 Switchyard and Transmission Line Layout and as described in Section 8.2.2.4 indicating bay positions (e.g., identified as 2S, 2N, 7N, and 4S in Section 8.2.2.4) in these switchyards (i.e., existing 500 kV yard and new 500 kV Yard 2).

08.02-2

FSAR Section 8.2.1.2, Station Switchyard, states that BBNPP is designed with a 500 kV gas insulated switchyard (GIS). In order for the staff to obtain a better understanding of the function of the proposed design, as required to make a safety determination with respect to General Design Criterion (GDC) 17, please confirm the GIS design with regard to the following information:

- a) Identify the standards (Institute of Electrical and Electronics Engineers (IEEE) etc.) that are being followed for the design, testing and installation of the GIS.
- b) Provide a description of the GIS components/equipment for the site-specific interconnection provisions between the GIS and the transformers (main step up transformer (MSU), emergency auxiliary transformer (EAT) & normal auxiliary transformer (NAT))

- c) Confirm that the insulation coordination for the switchyard has been performed to arrive at the basic impulse level (BIL) selected for the switchyard equipment. Provide summary results and assumptions.
- d) Provide the basis for selecting 40 kA as the interrupting rating of the 500 kV switchyard breaker.

08.02-3

FSAR Section 8.2.2.4, page 8-11, Compliance with General Design Criteria (GDC) 17, states that two relevant studies are available – the preliminary Susquehanna 1600 MW R01-R02 Impact Study Re-study (SIS) (system impact study), and the PJM [Pennsylvania, New Jersey, and Maryland’s regional transmission organization] Preliminary Stability Study for R01-R02, Bell Bend 500KV-1800MW (PSS) (grid stability study).

Provide a summary of the grid stability study and the system impact study, along with the assumptions made, and the acceptance criteria used for the case(s) analyzed. Please provide a summary of the grid stability steady-state and transient analysis results, and the system voltage study results, in order to demonstrate compliance with GDC 17, with the assumptions made, and the acceptable criteria used for the case(s) analyzed.

It is noted that the Applicant indicated that a system impact study was performed to analyze transient stability for the addition of BBNPP using PJM’s reliability planning criteria for the 2012 summer (peak) loading.

- (a) Please explain why the year 2012 was selected as the base case time frame for the stated study, and not beyond; and
- (b) Explain why the winter loading cases are not considered in the system impact study.

08.02-4

FSAR Section 8.2.2.5, page 8-18, notes that in order to comply with GDC 18, a COL applicant that references the U.S. EPR design certification will provide a site-specific station switchyard equipment inspection and testing plan that ensures that any modifications to the offsite power system circuits credited for satisfying GDC 17 and GDC 18 are performed by offsite transmission system operating authorities with a proper evaluation. The Staff notes that the application provides that an interface agreement is established to define the interfaces and working relationships between various Bell Bend site organizations and the PPL Electric Utilities Corporation (PPL EU) organizations responsible for maintaining these facilities.

- (1) Provide additional details describing which entity is responsible, per the subject agreement, for overseeing maintenance, modification, and operation of the offsite transmission lines, switchyards, and equipment related to Bell Bend NPP; and

- (2) If various Bell Bend site organizations split the responsibility for overseeing maintenance, modification, and operation of the offsite transmission lines, switchyards, and equipment related to Bell Bend NPP, describe how the site-specific station equipment inspection and testing plan will be implemented.

08.02-5

FSAR Section 8.2.2.8, page 8-20, which references compliance with 10 CFR 50.65(a)(4), Requirements for monitoring the effectiveness of maintenance at nuclear power plants, indicates that no departures have been made. US EPR Section 17.6 (Operational Programs) addresses these requirements. Bell Bend FSAR Section 17.6 identifies that NEI Topical Report 07-02, "Maintenance Rule Program Description" is incorporated by reference. Describe the details of the programs for reliability assessment (EPR FSAR 17.4) and maintenance rule program implementation (EPR FSAR 17.6) for offsite power system/ switchyard equipment.

08.02-6

Regarding FSAR Section 8.2:

- (1) Describe the site-specific raceway and cable routing for GIS switchyard equipment.
- (2) Describe site-specific wetting conditions or submergence, if any, as a result of seasonal or weather event water intrusion, for underground cables connecting offsite sources to safety buses.
- (3) Address how the proposed design for cable routing/layout/monitoring is to be implemented to prevent gradual degradation, as addressed in NRC Generic Letter 2007-01: Inaccessible or Underground Power Cable Failures that Disable Accident Mitigation Systems or Cause Plant Transients (Feb. 7, 2007) (GL-2007-01).

08.02-7

FSAR Section 8.2.2.4, which references compliance with GDC 17, states that two single circuit transmission lines will be part of the PPL EU 500 kV network. Provide the basis for selecting the thermal rating of the transmission lines (4260 MVA for each line) and the switchyard equipment continuous ratings.

08.02-8

500 KV Gas Insulated Switchyard Inspection and Testing:

FSAR Section 8.2.2.5, Compliance with GDC 18, provided site-specific information for the station switchyard equipment inspection and testing plan. However, specific inspection and testing requirements for GIS switchyard components and equipment are

not identified in this section. Provide operational experience data for GIS equipment and components that describe any specific periodic inspection and testing requirements. Confirm that a site-specific periodic testing and maintenance procedure for GIS will be provided (e.g., gas handling and leakage detection). In addition, address the site-specific initial testing program under Chapter 14.2.12.10.1 of U.S. EPR FSAR for GIS.

08.02-9

Section 8.2.2.5, for compliance with GDC 18:

Expand this section to include the testing and inspection of the offsite system for 500 kV switchyard grounding and lightning protection systems. Site-specific design aspects of the lightning protection and surge protection devices need to be addressed, as discussed in RG 1.204 to safeguard the SSCs from lightning strikes and the resulting secondary effects.