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January 22, 2010

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

**BELL BEND NUCLEAR POWER PLANT  
PARTIAL RESPONSE TO RAI No. 64 and  
REQUEST FOR EXTENSION  
BNP-2010-020      Docket No. 52-039**

References: 1) M. Canova (NRC) to R. Sgarro (PPL Bell Bend, LLC), Bell Bend COLA – Request for Information No. 64 (RAI No. 64) – CQVP-2813, email dated December 3, 2009

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. This RAI addresses the Initial Test Program, as discussed in Section 14.2 of the Final Safety Analysis Report (FSAR), as submitted in Part 2 of the Bell Bend Nuclear Power Plant Combined License Application (COLA).

The enclosure provides our responses to RAI No. 64, Questions 14.02-20, 14.02-21, and 14.02-23 through 14.02-25, which include revised COLA content. This future revision of the COLA is the only new regulatory commitment.

Question 14.02-22 requested details of the Initial Test Program (ITP), management, staffing, organizational details, and staff responsibilities. Organizational development is incomplete and agreements for ITP services and staff require further development. PPL Bell Bend, LLC will provide a response to Question 14.02-22 by June 1, 2010.

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 January 22, 2010

Respectfully,

  
Rocco R. Sgarro

RRS/kw

Enclosure: As stated

D079  
NRO

cc: (w/o Enclosures)

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Enclosure 1

Response to NRC Request for Additional Information No. 64,  
Questions 14.02-20, 14.02-21, 14.02-23-14.02-25  
Bell Bend Nuclear Power Plant

**Question 14.02-20**

Section 14.2.II.3.A of the Standard Review Plan (SRP, NUREG-0800) "Initial Test Program [ITP] Administrative Procedures," concerning design certification applications states that "[t]he [design certification] applicant should provide general guidance to control ITP activities, including administrative controls that will be used to develop, review, and approve individual test procedures, coordination with organizations involved in the test program, participation of plant operating and technical staff, and review, evaluation, and approval of test results."

The applicant's FSAR incorporates Section 14.2.1.1.1 of the U.S. EPR Design Certification application FSAR, "Construction Activities," which states, in part, that "[s]pecific construction test requirements shall be established in accordance with the site administrative procedures." The NRC staff requests that the applicant describe in detail the site-specific administrative controls for the turnover of systems to the startup organization.

**Response:**

As defined in RG 1.68, the initial test program consists of preoperational and initial startup tests conducted after completion of construction and construction-related inspections and tests. As such, construction activities are not part of the ITP. This is also stated in U.S. EPR Design Certification Section 14.2.1.1. The discussion of specific construction test activities was included as background information only and is not within the scope of the ITP. With respect to the administrative controls for orderly turnover of plant systems from construction, the FSAR will be revised as shown below.

**COLA Impact:**

The Bell Bend Nuclear Power Plant COLA FSAR Section 14.2.1 will be updated in a future revision, as shown.

14.2.1 SUMMARY OF TEST PROGRAM AND OBJECTIVES

No departures or supplements.

{14.2.1.1 Summary of the Startup Test Program

No departures or supplements.

14.2.1.1.1 Construction Activities

No departures or supplements. The official turnover of systems or portions of systems from the construction organization to the startup organization is controlled by site-specific procedures. The administrative procedures:

- Require components within the turnover boundary to be clearly designated;
- Require a review of construction activities to ensure that required construction activities within the turnover boundary are completed, or require identification of any incomplete construction activities;
- Require formal acceptance and turnover approval by the Site Commissioning Manager; and
- Establish controls to prevent unauthorized construction work activities within the turnover boundary to prevent potential safety issues.

14.2.1.1.2 Phase I – Preoperational Testing

No departures or supplements

14.2.1.1.3 Phase II – Initial Fuel Loading and Precritical Testing

No departures or supplements

14.2.1.1.4 Phase iii – Initial Criticality and Low Power Physics Testing

This section of the U.S. EPR FSAR is incorporated by reference with the following supplement.

For Item 6, following “The initial criticality and lower-power physics tests (LPPT) as a minimum consists of the following:”

Verification that the Technical Specification SR 3.1.2.1 requirement of 1000 pcm is met. At this point the Test Coordinator (or equivalent) should verify that initial criticality activities have been completed and transition to those activities supporting low power physics testing.

14.2.1.1.5 Phase IV – Power Ascension Testing

No departures or supplements}

**Question 14.02-21**

SRP 14.2.1.3 states that a COL application referencing a standardized design must address COL action items. The applicant's COL FSAR lists the COL items in Table 1.8-2, "FSAR Sections that Address COL Items." Table 1.8-2 of the applicant's COL FSAR lists seven COL items for Chapter 14.2; however, Chapter 14.2 of the U.S. EPR FSAR identifies three additional COL items. Specifically, the U.S. EPR FSAR identifies additional COL Items in Subsection 14.2.4, "Conduct of Test Program," Subsection 14.2.9, "Trial Use of Plant Operating and Emergency Procedures," and Table 14.2-1 of the U.S. EPR FSAR, "List of Initial Tests for the U.S. EPR."

The NRC staff requests that the applicant address all the COL information items identified in Section 14.2 of the U.S. EPR FSAR and revise Table 1.8.2 accordingly. The applicant can "address" a COL item either substantively or by explaining why the COL item does not apply to the COL application.

**Response:**

The Bell Bend Nuclear Power Plant (BBNPP) FSAR, Section 14.2, Revision 1 included all the COL information items of the U.S. EPR FSAR Section 14.2, Revision 0. The U.S. EPR FSAR, Revision 1, previously submitted to the U.S. NRC, included revisions to U.S. EPR FSAR Table 1.8-2, "U.S. EPR Combined License Information Items," and COL information items in Section 14.2. The BBNPP COLA change control process identified the revised information and license-basis change documents were prepared. The additional COL information items in U.S. EPR FSAR Table 1.8-2 and Section 14.2 will be added to a future revision of the Bell Bend COLA.

**COLA Impact:**

The COLA will not be changed as a result of this RAI.

### Question 14.02-23

Regulatory Guide (RG) 1.206, Section C.I.14.2.2, "Organization and Staffing," states that "the COL applicant should implement measures to ensure that personnel formulating and conducting test activities are not the same personnel who designed or are responsible for satisfactory performance of the system(s) or design features(s) being tested." The applicant is asked to revise its FSAR to include such provisions or to justify an alternative.

### Response:

FSAR Section 14.2.2 will be revised to clarify that personnel formulating and conducting test activities are not the same personnel who designed or are responsible for satisfactory performance of the system being tested.

### COLA Impact:

FSAR Section 14.2.2 will be revised to read as follows:

#### **Startup Organization**

{BBNPP will have a site-specific startup organization. As discussed in Section 13.1, the Startup Manager reports to the Vice President, Engineering.

The Startup Manager is responsible for startup test programs, including the preparation of test procedures, performance of applicable initial tests, and the preparation of appropriate test related documentation. Test procedures are prepared by AREVA or the accountable Startup/Preoperational Test Engineer with assistance from AREVA, the architect engineer, or other vendors, as required. The Startup Manager will ensure that all procedures that affect startup are properly reviewed by the appropriate organizations.

Organizations responsible for conducting startup tests will assure that these tests and their supporting activities are properly planned and completed as scheduled. They will also direct and coordinate execution of work activities that directly affect the startup test program. Personnel formulating and conducting test activities are not the same personnel who designed or are responsible for satisfactory performance of the system(s) or design features(s) being tested.

**Question 14.02-24**

SRP Section 14.2.II.3.A.i states that the applicant should provide organizational descriptions for principal management positions responsible for the planning, execution, and documentation of preoperational and startup testing activities.

Section 14.2.2 of the applicant's FSAR describes that organization and staffing. The Startup Organization consists of the Startup Manager, Startup Engineers and System Engineers. The Startup Organization is to be supplemented by plant personnel, architect - engineer (A/E) personnel and other contract/vendor staff as necessary to successfully complete the startup test program.

The NRC staff requests that the applicant confirm that sufficient managerial oversight and staffing is provided to complete the initial test program. If any additional managerial oversight is necessary to complete the initial test program, the staff requests that the applicant revise section 14.2.2 to provide an organizational description of any additional management positions; a description of the responsibilities, interfaces, and authorities of any additional management positions; and a description of the education, training, and experience requirements of any additional management positions.

**Response:**

PPL Bell Bend, LLC confirms sufficient management oversight and staffing is provided to complete the Initial Test Program.

**COLA Impact:**

The COLA will not be changed as a result of this RAI response.



#### **Question 14.02-25**

Standard Review Plan (SRP, NUREG-0800) Section 14.2, paragraph II.3.D regarding COL applicants, "Staff Responsibilities, Authorities, and Qualifications," states that "[t]he applicant should describe the education, training, and experience requirements established for each management and operating staff member—including the NSSS vendor, architect-engineer, and other major contractors, subcontractors, and vendors, as appropriate—who will conduct the preoperational and startup tests and will develop testing, operating, and emergency procedures." In addition, the SRP states that "[t]he applicant should develop a training program for each functional group of employees in the organization relative to the schedule for preoperational testing and initial startup testing to ensure that the necessary plant staff are ready to begin the test program."

The applicant's COL application, in Section 14.2.2, "Organization and Staffing," describes the roles and responsibilities of the start-up organization, which includes the startup manager, system engineers, startup engineers, plant personnel, architect-engineer personnel, other contract/vendor staff, and the Areva site startup organization. Section 14.2.2 references Section 13.1, "Organizational Structure of Applicant," for further details on startup organization. Table 13.1-1 in Section 13.1 Lists the projected staffing levels for the startup organization, which includes the startup manager, preoperational test engineer, and startup engineer. Table 13.1-1 also references ANS-3.1-1993 for the general description, necessary education, minimum experience, and special qualifications for the preoperational test engineer and the startup engineer.

The NRC staff requests that the applicant describe the education, training, qualification, and experience necessary for employees and managers of organizations responsible for the conduct of preoperational and startup tests and organizations that will develop testing, operating, and emergency procedures. In addition the NRC staff requests the applicant to provide a general description of how it will develop a training program for each functional group of employees in the organization relative to the schedule for preoperational testing and initial startup testing to ensure that the necessary plant staff is ready to begin the test program. Should the applicant seek to implement an alternative with respect to each of the above topics, the applicant should justify the alternative.

In addition, the NRC staff requests that the applicant either confirm that the System Engineer and Preoperational Test Engineer are the same position and address the apparent discrepancy in the title of the position in Section 14.2.2 and Table 13.1-1. If the System Engineer is a separate position, identify the education, training, and experience prerequisites established for that position, and describe the roles and responsibilities associated with the Preoperational Test Engineer position.

#### **Response:**

Table 13.1-1 will be revised to identify the Startup Manager as equivalent to the ANS-3.1-1993, Section 4.2.4 Technical Manager to establish the specific education, training, qualification, and experience requirements for the position of Startup Manager.

The System Engineer position and the Preoperational Test Engineer position are not the same positions. As stated in FSAR Section 14.2.2, test procedures are prepared by AREVA or the startup/preoperational test engineer and testing is conducted by the startup/preoperational test

engineers. FSAR Table 13.1-1 establishes the startup and preoperational test engineer education, training, qualification, and experience requirements as those specified in ANS-3.1-1993 Sections 4.4.11 and 4.4.12. The education and experience requirements for AREVA personnel preparing test procedures are equivalent to those specified for the startup and preoperational test engineer position. Other contract or vendor staff will meet the education, training, qualification, and experience requirements consistent with ANS-3.1-1993, Section 3.2, for Contractor and Temporary Positions.

FSAR Table 13.1-1 establishes the system engineer education, training, qualification, and experience requirements as those specified in ANS-3.1-1993 Sections 4.6.1.

Section 14.2.2 will be revised to add a discussion of training requirements applicable to the personnel responsible for conduct of preoperational and startup tests and the titles of System Engineer and Startup/Preoperational Test Engineer will be clarified.

### **COLA Impact:**

FSAR Section 14.2.2 will be revised as follows:

#### **Startup Organization**

{BBNPP will have a site-specific startup organization. As discussed in Section 13.1, the Startup Manager reports to the Vice President, Engineering.

The Startup Manager is responsible for startup test programs, including the preparation of test procedures, performance of applicable initial tests, and the preparation of appropriate test related documentation. Test procedures are prepared by AREVA or the accountable Startup/Preoperational Test Engineer with assistance from AREVA, the architect engineer, or other vendors, as required. The Startup Manager will ensure that all procedures that affect startup are properly reviewed by the appropriate organizations.

Organizations responsible for conducting startup tests will assure that these tests and their supporting activities are properly planned and completed as scheduled. They will also direct and coordinate execution of work activities that directly affect the startup test program.

Personnel formulating and conducting test activities are not the same personnel who designed or are responsible for satisfactory performance of the system(s) or design features(s) being tested.

The Startup Manager directs and controls Startup program technical and functional test activities, including prerequisite work and testing Phases I through IV. The Startup Manager is responsible for:

- Approving startup administrative and technical procedures.
- Planning, organizing, scheduling, directing, and controlling Startup activities.
- Managing Startup Program contracts to ensure accurate and timely compliance.
- Approving the Startup Test Schedule.
- Approving work and procedures that are prerequisite to the Startup program.
- Maintaining liaison with the project vendors to keep them informed of status, emerging problems in their respective areas, and support requirements.

- Assigning Startup Engineering Supervisor and ~~System Engineer~~ responsibilities.

The Startup Manager is supported by supervisors who function as Startup Engineering Support Supervisors. The Startup Engineering Support Supervisor supervises the work of the Startup/ Preoperational Test Engineers, and coordinates the work of System Engineers matrixed to the Startup Organization, as well as other plant personnel assigned to support the Startup Organization. Personnel functioning as the Startup Engineering Support Supervisor are responsible for:

- Supervising and directing the Startup/Preoperational Test Engineers.
- Ensuring that training and qualification of designated personnel is adequate for the tasks assigned in support of the Startup Organization.
- Coordinating support from plant organizations (e.g. instrument, chemistry, computer, radiation protection, and maintenance personnel) as required to complete the startup test program.
- Involving operations personnel in testing activities. Utilizing operations personnel to the extent practical, as test witnesses or test performers to provide the operations personnel with experience and knowledge.
- Maintaining the startup schedule.
- Developing and implementing administrative controls to address system and equipment configuration control.
- Identifying the need for and coordinating vendor support when required to support the startup test program.
- Managing the development and approval of procedures required to support the startuptest program.

The Startup Manager's engineering organization consists of System Engineers (matrixed from the engineering organization) who are responsible for specific systems and Startup/Preoperational Test Engineers who are responsible for testing evolutions and/or specific tests. System Engineers and Startup/Preoperational Test Engineers have the following responsibilities:

- Systems Engineer
  - Responsible for a specific system or subsystem.
  - Provides technical guidance and assistance in testing and the preparation of test procedures.
  - Recommends changes in plant design and/or construction to facilitate testing, operation, and maintenance.
- Startup/Preoperational Test Engineer
  - Assures that assigned test procedures are written and testing is conducted in accordance with the site-specific administrative procedures,
  - Supervises testing and reports current status of startup program work.
  - Coordinates startup activities among involved groups.

In addition to the Startup/Preoperational Test Engineers and System Engineers, the Startup organization will utilize plant personnel, architect - engineer (A/E) personnel and other contract/vendor staff as necessary to successfully complete the startup test program.

FSAR Section 14.2.2 will be revised as follows to add a new subsection at the end of the current section:

#### Qualification and Training

The education and qualification requirements for the Startup Manager, Startup Engineer, and Preoperational Test Engineer positions are consistent with the ANS-3.1-1993, Function Position, specified in Table 13.1-1.

Other contract or vendor staff will meet the education and experience requirements consistent with ANS-3.1-1993, Section 3.2, for Contractor and Temporary Positions.

Training of personnel that will be responsible for the conduct of preoperational and startup tests, and for organizations that will develop the preoperational and startup tests is based on site specific training and qualification of engineering personnel. Specific topics that will be addressed include the following:

- Administrative controls for modifying procedures.
- Verbatim procedure compliance and independent verification requirements.
- Administrative controls for documenting condition reports.
- Test sequence and program administration.
- Documentation requirements, including acceptance criteria reviews.
- Policies regarding operations control of equipment manipulations (valves, breakers switches, etc.).
- Preoperational Test/Startup Engineer interface with Test Review Team.
- Requirements regarding identifying (tagging) components within the released for test boundary.
- Requirements for components within tag out boundaries.
- Component specific training by major vendors (turbine, reactor coolant pumps, etc.), as applicable.

FSAR Table 13.1-1 will be revised on page 3 of 3 of the table to show the nuclear plant position of Startup Manager to be equivalent to the function position of ANS-3.1-1993, Technical Manager (Section 4.2.4).

Nuclear Function	Functional Position (ANS-3.1-1993 section)	Nuclear Plant Position (Site Specific)	Estimated Numbers of Full Time Equivalents			
			Design Review Phase	Construction Phase	Pre-op Phase	Operational Phase
Preoperational and Startup Testing	Manager ( <del>n/a</del> 4.2.4)	Startup Manager		1	1	1