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June 18, 2009

ATTN: Document Control Desk
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Washington, DC 20555-0001

BELL BEND NUCLEAR POWER PLANT
RESPONSE TO RAI SET NO. 9
BNP-2009-092 Docket No. 52-039

References: 1) M. Canova (NRC) to R. Sgarro (PPL Bell Bend, LLC), Bell Bend COLA – Request for Information No. 9 (RAI No. 9) – CQPV-2430, email dated May 21, 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 Plant Test Program – Design Certification and New License Applicants, 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 response to RAI No. 9, Questions 14.02-1 and 14.02-2, which include revised COLA content. A Licensing Basis Document Change Request has been initiated to incorporate this change in a future revision of the COLA. This future revision of the COLA is the only new regulatory commitment.

The response to Question 14.02-1 is consistent with the R-COLA (CCNPP3) response to RAIs 14 and 15, Question 14.02-1.

The response to Question 14.02-2 is consistent with the R-COLA (CCNPP3) response to RAI 90, Question 14.02-34.

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 June 18, 2009

Respectfully,

Rocco R. Sgarro

Enclosure: As stated

RRS/klf

D079
NRO

cc: (w/o Enclosures)

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Enclosure 1

Response to NRC Request for Additional Information Set No. 9
Bell Bend Nuclear Power Plant

RAI Set No. 9

Question 14.02-1

U.S. EPR COL Item 14.2.12.7.11 states that a combined license (COL) applicant that references the U.S. EPR design certification will provide site-specific information for testing of the circulating water supply system. This test is listed as a Phase I preoperational test.

U.S. EPR COL Item 14.2.21.6 states that a COL applicant that references the U.S. EPR design certification will provide site-specific information for testing of the cooling tower. That test is listed as a Phase IV power ascension test.

Section 14.2.14.5 of the Bell Bend Nuclear Power Plant (BBNPP) combined license application (COLA) combines these tests into the Circulating Water Supply System Test.

The NRC staff requests that the applicant revise its COLA to specify the timing (preoperational vs. power ascension) of the Circulating Water Supply Test provided to satisfy COLA Items 14.2-5 and 14.2-7. In addition, the NRC staff requests that the applicant explain how the objectives of the two tests in the EPR design certification will be met, and verify that both COLA Item 14.2-5 and COLA Item 14.2-7 are satisfied through this test abstract.

Response

U.S. EPR Final Safety Analysis Report (FSAR) Section 14.2.12.7.11 includes testing requirements for the Circulating Water Supply System while FSAR Section 14.2.12.21.6 includes the testing requirements for Cooling Tower Acceptance. Currently, Bell Bend FSAR Section 14.2.14.5 includes testing of the Circulating Water Supply System as well as the Cooling Tower Acceptance. The BBNPP COLA testing requirements will be divided into two tests consistent with the U.S. EPR FSAR taking into account the site-specific design.

COLA Impact

The Bell Bend FSAR will be updated to incorporate the response to this RAI in a future COLA revision. The Circulating Water Supply System testing requirements will be included in FSAR Section 14.2.14.5 and the Cooling Tower Acceptance testing requirements will be included in FSAR Section 14.2.14.7.

14.2.14.5 Circulating Water Supply System

1. OBJECTIVES
    a. To demonstrate the ability of the Circulating Water System, including circulating water makeup, blowdown, chemical treatment, and the cooling towers, to provide continuous cooling to the main condensers as designed.
    b. To provide baseline operating data.
2. PREREQUISITES
    a. Construction activities on the Circulating Water System have been completed.
    b. Construction activities on the cooling towers have been completed.
    c. Construction activities on circulating water makeup have been completed.
    d. Construction activities on circulating water chemical treatment have been completed.
    e. Construction activities on circulating water blowdown have been completed.
    f. Circulating Water System, including makeup, chemical treatment and cooling towers, is complete and functional.

g. Circulating Water System instrumentation is complete and functional and has been calibrated.
h. Support systems required for operation of the Circulating Water System are complete and functional.
i. Test instrumentation available and calibrated.
j. Alarm functions verified for operability and limits.
k. The Circulating Water System flow balance has been completed.
l. The Circulating Water Supply System has been pressure tested to confirm system integrity.
m. Relief valve (if any) setpoints have been verified.
n. Test shall be performed before power ascension. ~~Cooling tower performance testing requirements comply with Cooling Tower Institute (CTI) standards.~~

3. TEST METHOD
   a. Verify Circulating Water System component manual control from all locations.
   b. Verify automatic controls function at design setpoints.
   c. Verify MOV operation and performance.
   d. Verify standby circulating water makeup pump starts on low circulating water makeup header pressure.
   e. Verify circulating water pumps' discharge head and system flow meet design requirements.
   f. Verify auxiliary cooling water pumps' discharge head and auxiliary cooling water flow (with circulating water pumps off) meet design requirements.
   g. Verify circulating water makeup pumps' discharge head and makeup flow meet design requirements.
   h. Verify circulating water blowdown operates at rated flow and design conditions.
   i. Verify chemical treatment provides required circulating water chemistry conditions in cooling tower piping and tower basin.
   ~~j. Verify {cooling tower} performance using CTI's ATC-105, "Acceptance Test Code for Water Cooling Towers", or equal.~~
4. DATA REQUIRED
   a. Record of start, trip and alarm setpoints.
   b. Record of circulating water pumps' head versus flow and operating data.
   c. Record of auxiliary cooling pumps' head versus flow and operating data.
   d. Record of circulating water makeup pumps' head versus flow and operating data.
   e. Valve performance data, where required.
   f. Flow data to basins of the cooling towers.
5. ACCEPTANCE CRITERIA
   a. The ability to manually control the Circulating Water System from various locations is as per the design.
   b. The automatic controls function such that system performance meets or exceeds the design requirements.
   c. The MOV operation and performance is per design requirements.
   d. The standby circulating water makeup pump starts on low circulating water header pressure.
   e. The circulating water makeup pumps' discharge head and system flow meets or exceeds design requirements.
   f. The auxiliary cooling water pumps' discharge head and auxiliary cooling water flow (with circulating water pumps off) meets or exceeds design requirements.
   g. The circulating water makeup pumps' discharge head and makeup flow meets or exceeds design requirements.
   h. The circulating water blowdown operates at rated flow and design conditions

i. Chemical treatment provides circulating water chemistry conditions in cooling tower piping and tower basin per the design.

~~a~~ j. The Circulating Water System operates as described in Section 10.4.5.

14.2.14.7 Cooling Tower Acceptance

1. OBJECTIVES
   a. To demonstrate the cooling tower is capable of rejecting the design heat load.
2. PREREQUISITES
   a. Construction activities are complete
   b. Circulating Water System flow balance has been performed.
   c. Permanently installed instrumentation is functional and calibrated. Test instrumentation is available and calibrated.
   d. Plant output is at approximately rated power.
3. TEST METHOD
   a. Perform a measurement of the cooling tower performance using Cooling Tower Institute (CTI) standards.
4. DATA REQUIRED
   a. Cooling water temperature and flows.
5. ACCEPTANCE CRITERIA
   a. The cooling tower performance meets manufacturer's design as described in Section 10.4.5.

Question 14.02-2

According to Regulatory Guide 1.68 Appendix A.1.n.18, the applicant should demonstrate the operability of heat tracing and freeze protection systems in the initial test program for these systems. Section 14.2.14 of the BBNPP COLA does not include testing to demonstrate the operability of heat tracing and freeze protection systems. The NRC staff requests that the applicant either revise section 14.2.14 of the COLA to include testing to demonstrate the operability of heat tracing and freeze protection systems, or justify the exclusion of these tests.

Response

The general requirements for electrical heat tracing and freeze protection will be added to FSAR Chapter 8 Electric Power. In addition, FSAR Section 14.2.14 will be revised to include testing to demonstrate the operability of heat tracing and freeze protection systems for applicable systems.

COLA Impact

FSAR Section 8.3.1.4 will be added in a future COLA revision:

{8.3.1.4 Electrical Heat Tracing

Electrical heat tracing systems are installed to provide freeze protection for service components and process fluids, as required. Power for heat tracing is supplied from the onsite distribution system buses. If applicable, safety-related heat tracing is Class 1E and assigned to the appropriate division of safety-related power.

Freeze protection is incorporated at the individual system level using insulation for external tanks, tubing, instruments, and piping that may freeze during winter weather.

8.3.1.4.1 Analysis

There is no standard review plan (SRP) or regulatory guidance provided for electric heat tracing systems. ANSI/IEEE STD 622-1987 (ANSI/IEEE, 1987) and IEEE STD 515-2004 (IEEE, 2004) are the standards used for design, installation and testing of electric heat tracing systems.}

FSAR Section 8.3.3 will be revised as follows in a future COLA revision:

8.3.3 REFERENCES

{**NRC, 1988.** Station Blackout, Regulatory Guide 1.155, U.S. Nuclear Regulatory Commission, August 1988.}

ANSI/IEEE, 1987. American National Standard for IEEE Recommended Practice for the Design and Installation of Electric Heat Tracing Systems for Nuclear Power Generating Stations, ANSI/IEEE STD 622-1987, Institute of Electrical and Electronics Engineers, 1987.

IEEE, 2004. IEEE Standard for the Testing, Design, Installation, and Maintenance of Electrical Resistance Heat Tracing for Industrial Applications, IEEE STD 515-2004, Institute of Electrical and Electronics Engineers, 2004}

FSAR Section 14.2.14.1 will be supplemented to include the following new prerequisites, test methods, data required and acceptance criteria in a future COLA revision:

14.2.14.1 {Essential Service Water Emergency Makeup System (ESWEMS)

2. PREREQUISITES

g. Temperature controller settings and monitoring functions such as electrical circuit and temperature alarms for heat tracing systems are set in accordance with ESWEMS piping design requirements.

h. To ensure proper operation, heat tracing systems shall be tested before and after installation of the piping/tubing insulation, as applicable.

3. TEST METHOD

i. Verify the temperature controller and monitoring functions for the heat tracing system operate in accordance with the design requirements.

4. DATA REQUIRED

e. Record temperature controller set points and monitoring functions for proper operation of the heat tracing system operation.

5. ACCEPTANCE CRITERIA

b. Heat tracing operates within temperature controller set point limits, and monitoring functions operate in accordance with design requirements.