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June 12, 2012

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

**BELL BEND NUCLEAR POWER PLANT
RESPONSE TO RAI NO. 113
BNP-2012-134 Docket No. 52-039**

Reference: M. Canova (NRC) to R. R. Sgarro (PPL Bell Bend, LLC), Bell Bend COLA –
Final Request for Information No. 113 (RAI No. 113) – RSAC 5868, email dated
April 27, 2012

The purpose of this letter is to respond to the Request for Additional Information (RAI) identified in the Reference. This RAI addresses the Solid Waste Management System as discussed in Section 11.4 of the Final Safety Analysis Report, as submitted in Part 2 of the Bell Bend Nuclear Power Plant Combined License Application


The enclosure to this letter provides our response to RAI No. 113 Question 11.04-3.

Should you have questions, please contact the undersigned at 610.774.7552.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on June 12, 2012

Respectfully,


Rocco R. Sgarro

RRS/kw

Enclosure: As stated

D102
MRO

cc: (w/ Enclosure)

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(w/o Enclosure)

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Enclosure

Response to RAI No. 113, Question 11.04-3

RAI No. 113**Question 11.04-3**

Supplemental questions to follow up on BBNPP's response to NRC RAI Letter No. 100, Question 11.04-1

Regulatory Guide 1.189, "Fire Protection for Nuclear Power Plants," (October 2009), explains the primary objectives of fire protection programs (FPPs) at nuclear power plants, and describes the regulatory framework the NRC has established, including but not limited to GDC 3, "Fire Protection," as set forth in Appendix A, "General Design Criteria for Nuclear Power Plants," to 10 CFR, Part 50; 10 CFR 50.48, "Fire Protection;" and the radiological exposure criteria in 10 CFR Part 20. Reg. Guide 1.189, page 19, also explains that in order to meet NRC's FPP regulations, an FPP, including the fire hazards analysis, should demonstrate that the plant will maintain the ability to minimize the potential for radioactive releases to the environment in the event of a fire. Fires are expected to occur over the life of a nuclear power plant and, thus, should be treated as anticipated operational occurrences, as defined in Appendix A to 10 CFR Part 50. Requirements for protection against radiation during normal operations appear in 10 CFR Part 20, "Standards for Protection against Radiation." Anticipated operational occurrences should not result in unacceptable radiological consequences, and the exposure criteria of 10 CFR Part 20 apply. Prevention of a radiological release that could result in a radiological hazard to the public, environment, or plant personnel becomes the primary FPP objective for reactor shutdown and decommissioning.

In RAI No. 100, Question 11.04-1, the staff asked the applicant to address footnote 15 in U.S. EPR FSAR Rev. 2 (now Rev. 3), Table 9A-2, which specifies that for some areas of the plant where radioactive materials are stored and for which there exists the potential of fires involving radioactivity, the COL applicant will evaluate possible radiological effects from a fire and the need for additional in-depth fire protection features to mitigate the consequences of a fire as part of the final fire hazards analysis (FHA). Because BBNPP FSAR Tier 2, Sections 9B.1.2, 9B.2.3, Tables 9.5-1 and 9B-2, and Section 11.4 do not present a site-specific fire protection analysis (FPA) for areas of the plant where radioactive materials, such as dry active wastes, spent ion-exchange resins, and spent charcoals, will be processed and stored while awaiting shipment, the staff requested that the applicant provide this information.

In a response dated June 17, 2011, the applicant stated that no revisions would be made to the BBNPP COLA FSAR, and that:

"[t]he BBNPP COLA does not identify any site-specific locations where radioactive materials will be processed or stored. Therefore, the site-specific Fire Protection Analysis in the BBNPP FSAR does not need to address the items identified in this RAI question."

In this response, the applicant also stated:

"[t]he locations for processing and storage of radioactive materials are identified in the U.S. EPR FSAR. The fire areas that may contain radioactive material can be identified by reviewing U.S. EPR FSAR Revision 2, Table 9A-2, Radiological Effects (Note 15) designations. These identified fire areas are included in the scope of the U.S. EPR design certification and its respective Fire Hazards Analysis (FHA) and are outside the scope of the BBNPP COLA. Should BBNPP consider alternative locations for storing radioactive material at a later date, any changes considered will be processed through the 10 CFR 50.59, "Changes, tests and experiments" review and evaluation process and will consider all

relevant aspects of regulations. Additionally, COL Item 9.5-17 identifies that the COL Applicant that references the U.S. EPR design certification will evaluate differences between the as-designed and as-built plant configuration to confirm that the Fire Protection Analysis remains bounding. This COL Item is addressed in BBNPP FSAR 9.5.1.3 and commits BBNPP to confirm that the Fire Protection Analysis remains bounding and to identify any deviations from the U.S. EPR FSAR, prior to fuel load.”

U.S. EPR FSAR Rev. 3, Section 9A.3.8 and FSAR Table 9A-2 do not provide the results of fire protection analyses or engineering evaluations for plant areas identified with potential radiological effects. Therefore, the staff requests that the applicant provide the following information:

- (1) How does the applicant plan to address U.S. EPR FSAR Rev. 3, Table 9A-2 (footnote 15), which states that the COL applicant that references the U.S. EPR design will evaluate possible radiological effects from a fire and the need for additional in-depth fire protection features to mitigate the consequences of a fire as part of the final fire hazards analysis (FHA)?
- (2) When the applicant states that “[t]he locations for processing and storage of radioactive materials are identified in the U.S. EPR FSAR[,]” and “[t]he fire areas that may contain radioactive material can be identified by reviewing U.S. EPR FSAR Revision 2 (now Rev. 3), Table 9A-2, Radiological Effects (Note 15) designations[,]” to which locations and fire areas is the applicant referring?
- (3) Because the U.S. EPR FSAR Rev. 3, Section 9A.3.8 and FSAR Table 9A-2 do not provide the results of fire protection analyses or engineering evaluations for all plant areas identified with potential radiological effects, how does the applicant plan to compare “as designed” and “as built” plant configurations” or “use the 10 CFR 50.59 change process to evaluate the impact of placing potentially combustible radioactive materials in other areas of the plant”?

In response to the staff’s follow-up questions above, the COL applicant should provide sufficient information to enable the staff to conduct an independent evaluation and confirm the applicant’s conclusions of regulatory compliance with the radiological exposure criteria in 10 CFR 20.1301 and 1302, as noted in Regulatory Guides 1.189 (Licensing and Design Basis) and 1.206 (Part 1, C.1.9.5.1) and NUREG-0800, SRP Sections 9.5.1, 11.3, and 11.4.

Response

As noted in the Reference COLA (RCOLA) response to CCNPP3 RAI 324, Question 09.05.01-20¹, U.S. EPR Final Safety Analysis Report (FSAR) Rev. 2, Table 9A-2 indicates that there are several instances where radiological effects are presumed, but qualified with a Footnote (Footnote 15) leaving the specifics of the fire protection analyses to be completed by the COL applicant. The fire areas qualified with Footnote 15 in U.S. EPR FSAR Rev. 2, Table 9A-2 are the Reactor Building fire area: FA-UJA-01, Reactor Building Annulus fire area FA-UJB-01 (added by RAI response)², Fuel Building fire areas: FA-UFA-01, FA-UFA-02, FA-UFA-03, FA-UFA-04,

¹ UniStar Nuclear Energy Letter UN#11-286, from Mark T. Finley to Document Control Desk, U.S. NRC, Response to Request for Additional Information for the Calvert Cliffs Nuclear Power Plant, Unit 3, RAI No. 324, Fire Protection Program, dated November 16, 2011.

² AREVA NP Response to U.S. EPR RAI 482 Supplement 2, from Dennis Williford (AREVA NP) to Getachew Tesfaye (NRC), dated August 30, 2011 (ML11242A256).

FA-UFA-05, FA-UFA-07, FA-UFA-12, FA-UFA-13, Nuclear Auxiliary Building fire areas: FA-UKA-01, FA-UKA-03, FA-UKA-05, FA-UKA-10, FA-UKA-11, Radioactive Waste Processing Building fire area: FA-UKS-03, Access Building fire areas: FA-UKE-01, FA-UKE-03, FA-UKE-04, FA-UKE-05, FA-UKE-06, and FA-UKE-09.

The Calvert Cliffs Nuclear Power Plant (CCNPP) Unit 3 RAI No. 311, Question 09.05.01-17 response³ stated that COL Item 9.5-17 identifies that a COL Applicant that references the U.S. EPR design certification will evaluate differences between the as-designed and as-built plant configuration to confirm that the Fire Protection Analysis remains bounding. This COL Item is addressed in BBNPP FSAR Section 9.5.1.3, which commits BBNPP to perform an evaluation of the as-designed and as-built plant to identify any deviations from the U.S. EPR FSAR, and confirm that the Fire Protection Analysis remains bounding, prior to fuel load. In BBNPP FSAR Revision 3⁴, a sentence was added to BBNPP FSAR Section 9.5.1.3, in the paragraph which discusses how COL Item 9.5-17 is addressed, to indicate that the evaluation will address fire areas (identified with Footnote 15 in U.S. EPR FSAR Table 9A-2) which have the potential for the presence of radiological sources.

Item 1

This item is addressed with the sentence which was added to BBNPP FSAR Section 9.5.1.3. This sentence indicates that the evaluation will address fire areas (identified with Footnote 15 in U.S. EPR FSAR Table 9A-2) which have the potential for the presence of radiological sources.

Item 2

The fire areas qualified with Footnote 15 in U.S. EPR FSAR Rev. 2, Table 9A-2, the same as the U.S. EPR FSAR Rev. 3, Table 9A-2, are listed above in this RAI response. This item is also addressed with the sentence which was added to BBNPP FSAR Section 9.5.1.3. This sentence indicates that the evaluation will address fire areas (identified with Footnote 15 in U.S. EPR FSAR Table 9A-2) which have the potential for the presence of radiological sources. No changes are required to BBNPP FSAR Sections 11.4 and 13.4 as the FSAR Section 9.5.1.3 change appropriately addresses the issue.

Item 3

See response to item 1 above

COLA Impact

COLA changes due to the Reference COLA (RCOLA) response to CCNPP3 RAI 324, Question 09.05.01-20⁵ response were incorporated into BBNPP COLA Revision 3⁴. No further COLA changes are required as result of this RAI response.

³ UniStar Nuclear Energy Letter UN#11-188, from Greg Gibson to Document Control Desk, U.S. NRC, Response to Request for Additional Information for the Calvert Cliffs Nuclear Power Plant, Unit 3, RAI No. 311, Fire Protection Program, dated June 21, 2011.

⁴ PPL Letter BNP-2012-089, from Rocco R. Sgarro to Document Control Desk, Bell Bend Nuclear Power Plant Submittal of Bell Bend COLA, Revision 3, dated March 30, 2012.

⁵ UniStar Nuclear Energy Letter UN#11-286, from Mark T. Finley to Document Control Desk, U.S. NRC, Response to Request for Additional Information for the Calvert Cliffs Nuclear Power Plant, Unit 3, RAI No. 324, Fire Protection Program, dated November 16, 2011.