BellBendCOLPEm Resource

From: Canova, Michael
Sent: Friday, May 27, 2011 11:41 AM
To: 'Sgarro, Rocco R'; 'Freels, James'; 'melanie.Frailer@unistarnuclear.com'; Woodring, Kathryn L
Cc: BellBendCOL Resource; Colaccino, Joseph; Vrahoretis, Susan; Roach, Edward; Dehmel, Jean-Claude; Clark, Phyllis
Subject: RE: Bell Bend COLA - Draft Request for Information No. 106 (RAI No. 106)- CHPB 5416, 5425, 5454
Attachments: Draft RAI Letter 106 - CHPB 5416, 5425, 5454.doc

Attached is DRAFT RAI No.106 for the Bell Bend COL Application. You have 15 working days to review this request and to decide whether you need a conference call to discuss it. Please notify me of your decision in this regard.

After the call, or after ten days, the RAIS will be finalized and sent to you. The schedule for response submittal will be established prior to formalizing this RAI .

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

Hearing Identifier: BellBend_COL_Public
Email Number: 522

Mail Envelope Properties (77BCCD26C6050B42A72FE3939CF492ED8B0E96C02E)

Subject: RE: Bell Bend COLA - Draft Request for Information No. 106 (RAI No. 106)-CHPB 5416, 5425, 5454
Sent Date: 5/27/2011 11:41:16 AM
Received Date: 5/27/2011 11:41:24 AM
From: Canova, Michael

Created By: Michael.Canova@nrc.gov

Recipients:
"BellBendCOL Resource" <BellBendCOL.Resource@nrc.gov>
Tracking Status: None
"Colaccino, Joseph" <Joseph.Colaccino@nrc.gov>
Tracking Status: None
"Vrahoretis, Susan" <Susan.Vrahoretis@nrc.gov>
Tracking Status: None
"Roach, Edward" <Edward.Roach@nrc.gov>
Tracking Status: None
"Dehmel, Jean-Claude" <Jean-Claude.Dehmel@nrc.gov>
Tracking Status: None
"Clark, Phyllis" <Phyllis.Clark@nrc.gov>
Tracking Status: None
"'Sgarro, Rocco R'" <rrsgarro@pplweb.com>
Tracking Status: None
"'Freels, James'" <James.Freels@unistarnuclear.com>
Tracking Status: None
"'melanie.Frailer@unistarnuclear.com'" <melanie.Frailer@unistarnuclear.com>
Tracking Status: None
"Woodring, Kathryn L" <KFitzpatrick@pplweb.com>
Tracking Status: None

Post Office: HQCLSTR01.nrc.gov

Files	**Size**	**Date & Time**
MESSAGE	659	5/27/2011 11:41:24 AM
Draft RAI Letter 106 - CHPB 5416, 5425, 5454.doc	53754	

Options
Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received:

RAI Letter 106
Application Revision 2

DRAFT

5/26/2011

Bell Bend
PPL Bell Bend LLC.
Docket No. 52-039

QUESTIONS for Health Physics Branch (CHPB)

Request for Additional Information No. 5425

SRP Section: 11.02 - Liquid Waste Management System
Application Section: 11.2 and 17

11.02-6

A review of BBNPP FSAR Tier 2, Rev. 2, Section 11.2 and Chapter 17 indicates that the design basis and system descriptions incorporate by reference the information presented in FSAR Section 11.2 of the U.S. EPR design certification. In turn, this endorsement references several other supporting QA documents. These documents address certain aspects of the quality assurance program for the design, fabrication, procurement, and installation of the LWMS that would meet the guidance of RG 1.143. BBNPP FSAR Tier 2, Section 17 refers to the Unistar Nuclear Topical Report No. UN-TR-06-001-A, “Quality Assurance Program Description,” Rev. 0, April 9, 2007; and incorporates by reference FSAR Section 17 of the U.S. EPR design certification. A review of U.S. EPR FSAR Section 17.2 indicates that the construction phase and operations of the U.S. EPR are not applicable in the context of its design certification. U.S. EPR FSAR Section 17.3 refers to U.S. EPR FSAR Section 17.5 for details on the description of the QA program. U.S. EPR FSAR Section 17.4 is devoted to the reliability program. U.S. EPR FSAR Section 17.5 relies on the AREVA NP Topical Report ANP-10266A (Rev. 1) in describing its quality assurance program. U.S. EPR FSAR Section 17.2 commits the COLA applicant to provide the applicable quality assurance program for the construction and operational phases.

BBNPP FSAR Section 17.3 states that the corresponding section of the U.S. EPR FSAR Section 17.3 is incorporated by reference. BBNPP FSAR Section 17.4 is devoted to the reliability program. BBNPP FSAR Section 17.5 incorporates by reference the U. S. EPR FSAR Section 17.5; and, with some exceptions, also adopts Revision 0 of the Unistar topical report (Unistar Nuclear Topical Report, UN-TR-06- 001-A) in describing its QA program in Part 11a (Bell Bend Quality Assurance Program Description (QAPD, Rev.1).

A review of the Bell Bend Quality Assurance Program Description, Revision 1, Section U (Quality Assurance Program Commitments) and Section V (Nonsafety-Related SSC Quality Controls) indicates that RG 1.143 is not listed among the cited documents for the LWMS, GWMS or the SWMS in complying with NRC regulations. Note that although

Section U refers to RGs 1.26 and 1.29, these two RGs do not apply to radioactive waste management systems, as stated in both RGs. Similar observations were made during the review of the AREVA NP Topical Report ANP-10266A (Rev. 1). As a result, BBNPP FSAR Tier 2, Section 11.2 makes a design commitment for the LWMS that is not supported by (i) BBNPP FSAR Tier 2, Sections 11.2 and 17, (ii) Bell Bend Quality Assurance Program Description, Revision 1, and (iii) Unistar Nuclear Topical Report UN-TR-06-001-A.

Accordingly, the applicant is requested to consider the following and make appropriate revisions to BNPP FSAR Tier 2, Sections 11.2 and 17.5. Specifically:

1. Revise Section U or V of the Bell Bend Quality Assurance Program Description (QAPD) to include RG 1.143 in its QA program commitments, and as part of that commitment the applicant is requested to endorse the following industry guidance: ANSI/ANS-55-6-1993 (Reaffirmed May 14, 2007) for the LWMS; ANSI/ANS-55-4-1993 (Reaffirmed May 14, 2007) for the GWMS; and ANSI/ANS-40-37-2009 for the SWMS in the appropriate sections of the BBNPP FSAR.

2. Describe in BBNPP FSAR Tier 2, Section 11.2 the elements of QA program that address the design, fabrication, procurement, and installation of the LWMS based on the guidance of RG 1.143 in response to U.S. EPR COL Information Item 17.2-1, and provide the details on how the QA elements of the regulatory guide would be implemented at BBNPP for fabrication, procurement, and installation of permanently installed and skid-mounted systems and components.

3. Identify corresponding changes to BBNPP FSAR Tier 2, Section 11.3 for the GWMS, BNPP FSAR Section 11.4 for the SWMS, and BBNPP FSAR Section 11.5 for the PERMSS in ensure a consistent application of QA requirements and guidance for the purpose of demonstrating compliance with effluent concentration and dose limits of 10 CFR 20.1301 and 20.1302 and design objectives of Part 50, Appendix I.

4. Make a clear distinction among those elements of the QA program that are mandated under the requirements of Part 50, Appendix B, as identified in U.S. EPR FSAR Rev. 1, Table 3.2.2-1, versus those that would be implemented under RG 1.143 which should be described in BBNPP FSAR Section 11.2 for the LWMS, BBNPP FSAR Section 11.3 for the GWMS, and BBNPP FSAR Section 11.4 for the SWMS.

5. For the permanently installed LWMS, as described in the BBNPP FSAR Section 11.2, the applicant is requested to clarify those aspects of the RG 1.143 QA program that are the responsibility of BBNPP in developing procurement specifications in confirming the proper fabrication and installation of LWMS components.

6. For skid mounted-LWMS and SWMS, described as COLA options in U.S. EPR FSAR, Rev. 1, Sections 11.2.2 and 11.4.1, the applicant is requested to clarify those aspects of the RG 1.143 QA program that are the responsibility of BBNPP for the design and development of procurement specifications, proper fabrication in confirming correct operational interfaces of supplemental skid-

mounted processing subsystems connected to the permanently installed LWMS and SWMS.

7. For the permanently installed GWMS, as described in the BBNPP FSAR Section 11.3, the applicant is requested to clarify those aspects of the RG 1.143 QA program that are the responsibility of BBNPP for the development of procurement specifications in confirming the proper fabrication and installation of GWMS components against those portions of the GWMS system that fall under the requirements of Part 50, Appendix B QA program as identified in U.S EPR Rev. 1, FSAR Table 3.2.2-1.

Request for Additional Information No. 5454

SRP Section: 11.02 - Liquid Waste Management System
Application Section: 11.2

11.02-7

BBNPP FSAR Tier 2, Rev. 2, Section 11.2.3 presents information on liquid effluent discharges and doses to members of the public by incorporating by reference, with additional supplemental information, the corresponding FSAR sections of the U.S. EPR design certification. A comparison of the information presented in BBNPP FSAR Tier 2, Rev. 2, Sections 11.2.2, 11.2.3, 10.4.5 and 2.1.1.3, and FSAR Figure 10.4-8 indicates that the information presented in the corresponding sections of the U.S. EPR is different and inconsistent with the characteristics of the Bell Bend site used in confirming compliance with NRC regulations. Specifically, the following items were noted:

a. BBNPP FSAR Tier 2, Section 11.2.3, does not address site-specific conditions in confirming that routine liquid effluent releases will comply with Part 20 (Appendix B, Table 2, Column 2) effluents concentration limits. The BBNPP FSAR should compare all design features and assumptions applied in Section 11.2 of the U.S. EPR Tier 2 FSAR and identify those features that are applicable to the Bell Bend site and, for those that are not, provide site specific parameters with appropriate justifications. For example, a review of U.S. EPR, Rev. 1, FSAR Tier 2, Section 11.2.3 and Tables 11.2-5 and 11.2-9 indicates that dose results are based on different assumptions, such as discharge dilution flow rates of 100 ft^3/s, 20 ft^3/s, and 39.3 ft^3/s under different conditions and calculation applications; use of irrigation pathway; use of fresh water site condition for individual dose estimates and salt water site conditions for population doses; and use of a dilution factor of 365 in estimating population doses. In BBNPP FSAR Tier 2, Section 11.2.3, the applicant has not included a comparative analysis to confirm that assumptions and parameters used in dose modeling described in the U.S. EPR Rev. 1, FSAR, Tier 2, Section 11.2.3 apply to the specific conditions of the Bell Bend site, including confirmation of offsite dose receptors based on the results of the most current the land-use census. In addition, the referenced BBNPP Environmental Report (ER) Sections 5.4.1 and 5.4.2 presents assumptions and parameters that are different than that described in Section 11.2.3 of the U.S. EPR FSAR. As a result, the staff concludes that the regulatory compliance analyses presented in U.S. EPR Rev.1, FSAR Section 11.2 cannot be incorporated by reference in BBNPP FSAR Tier 2, Section 11.2.3 as a substitute evaluation of radiological impacts associated with liquid effluent releases and compliance with NRC regulations.

b. BBNPP FSAR Tier 2, Rev. 2, Section 10.4.5 and FSAR Figure 10.4-8 present information on the liquid effluent discharge path. A review of this information indicates that the description of the liquid effluent path is incomplete, starting from the boundary of the Radioactive Waste Processing Building (RWB) to the point of actual discharge into the environment. BBNPP FSAR, Tier 2, Section 11.2.2 does not define the boundary of the discharge path beyond the LWMS effluent radiation monitor and isolation valve to the point of controlled discharge into the Susquehanna River for those portions of the balance-of-plant system that are site-specific, given the guidance of Regulatory Guides 1.143 and 1.206 and acceptance criteria of SRP Section 11.2. BBNPP FSAR Tier 2, Section 11.2.2 should be revised to include descriptions of all design features and assumptions that are applicable to the Bell Bend site and provide a complete description of the liquid effluent discharge path to the Susquehanna River.

c. A comparison of U.S. EPR, Rev. 1, FSAR Tier 2, Section 11.2.3.3 and Figures 11.2-1 and 9.2.5-1 against BBNPP FSAR Sections 9.2.5, 10.4.5, and 11.2 and Figures 9.2-3, and 10.4-8 indicates that dilution streams from other plant systems are not fully accounted in the descriptions of the discharge path. BBNPP FSAR Sections 9.2.5 and 10.4.5 and Figure 10.4-8 do not describe the impact on plant blowdown rates and dilution factors in the event that the "alternate blowdown path" is selected during plant operation, and other plant process effluents (e.g., Turbine Building Plant Drainage). As result, the FSAR does not account for all balance-of-plant dilution streams going to the retention basin, does not describe the “alternate blowdown path” and its expected flow rates, and does not list the flow rate from the water treatment plant with which liquid radioactive effluent are mixed prior to discharge to the Susquehanna River via the CWS outfall. As a result, the description of the liquid effluent discharge path and site-specific conditions are different for BBNPP than that described in the U.S. EPR FSAR and, consequently, the staff concludes that the regulatory compliance analyses presented in U.S. EPR FSAR Rev. 1, Section 11.2 cannot be incorporated by reference in the BBNPP FSAR Tier 2, Section 11.2.3 as a substitute description of effluent releases and basis of associated dilution factors in assessing radiological impacts associated with liquid effluent releases and compliance with NRC regulations.

d. Based on the applicant’s communication to the NRC (BNP-2010-117) describing the impact of the relocation of the nuclear power block on the site, BBNPP Section 11.2 has not identified nor addressed the implications and impacts associated with the relocation of the nuclear power block on the discharge path from the RWB to the point of release in unrestricted areas. Any changes to the discharge path, changes in connections from other process or dilution streams, and structure or discharge location need to be identified, and their impacts on effluent discharge dilution flows and rates, and doses to members of the public in complying with Part 20.1301, 20.1302, and Appendix B Table 2 requirements need to be assessed.

e. Under BBNPP FSAR Tier 2, Section 2.1.1.3, the definition of the plant boundary for radioactive effluent releases does not identify the location of the CWS outfall in the Susquehanna River for liquid effluents. Rather, the discussion addresses compliance with Parts 34(a)(1)(ii)(D)(1) and Part 100 regulations associated with gaseous effluent releases during accident conditions and not during routine effluent releases. The commitment to demonstrate compliance with NRC regulations is incomplete as it does not identify the requirements of Part 20 (Appendix B, Table 2, Column 2) for liquid effluents released during routine operation; and offsite dose limits to members

of the public under Parts 20.1301 and 20.1302; Part 20.1301(e) in complying with 40 CFR Part 190; and design objectives of Sections II.A and II.D of Appendix I to Part 50.

In light of the above, the applicant is requested to evaluate the following and revise BBNPP FSAR Tier 2, Section 11.2 accordingly. The applicant is requested to:

1. Present in FSAR Tier 2, Section 11.2.2 the descriptions of design features that are applicable to the Bell Bend site, including balance-of-plant features, definition of the effluent discharge path from the boundary of the RWB to the point of release in the Susquehanna River, descriptions of plant blowdowns and other plant process effluents with which radioactive liquid effluents are mixed before discharge into the environment, associated plant blowdown and effluent flow rates used in assessing radiological impacts, changes of in-plant dilution rates whenever the plant operates in the "alternate blowdown path," and provide information and cite references supporting the applied Susquehanna River dilution factor/mixing ratio, if used in liquid effluent dose calculations. The discharge dilution blowdown rate described in BBNPP FSAR Tier 2, Table 10.4-1 is different than that applied in Gale Code input values identified in BBNPP FSAR Table 11.2-1.

2. Use Bell Bend balance-of-plant design features and site-specific information, revise BBNPP FSAR Tier 2, Section 11.2.3 and describe the evaluation and present results demonstrating compliance with the effluent concentration limits of Part 20 (Appendix B, Table 2, Column 2); and dose limits to members of the public under Parts 20.1301 and 20.1302; Part 20.1301(e) in complying with 40 CFR Part 190 for all exposure pathways; and design objectives of Sections II.A and II.D of Appendix I to Part 50 for dose receptors based on the current land-use census. The applicant is requested to provide as part of the BBNPP Section 11.2 submittal sufficient information including cited references for the staff to conduct an independent evaluation of the applicant's analyses in complying with NRC regulations and confirm consistency with the corresponding results presented in Section 5.4 of the BBNPP ER.

3. Update the regulatory description of the plant boundary for radioactive liquid effluents in BBNPP FSAR Tier 2, Section 2.1.1.3 by including the requirements of Part 20 (Appendix B, Table 2, Column 2), Parts 20.1301 and 20.1302, Part 20.1301(e), and Appendix I to Part 50. (Note: This observation also applies to gaseous effluents. It is recommended that as part of this RAI, the applicant extends the revision of FSAR Section 2.1.1.3 to address as well gaseous effluents generated during routine plant operation.).

4. Provide description of any changes to BBNPP Section 11.2 as a result of the relocation of the nuclear power block on the current site layout. This description would include any changes to the discharge path from the boundary of the RWB, implications on discharge flow rates, basis and application of onsite dilution factors, effluent release rates, effluent concentrations at the point of discharge in unrestricted areas, and supporting assumptions in calculations used to estimate releases and dose consequences to members of the public.

For all of the above, the applicant is requested to describe in its response and revisions of FSAR Section 11.2, the methodology, assumptions and default parameters, revised discharge flow paths and dilution rates, site-specific information on dose receptor locations, exposure pathways, and updated offsite

effluent concentrations and dose results. The applicant should provide sufficient information to enable the staff to conduct an independent evaluation of offsite effluent concentrations, doses to members of the public and populations, and confirm the results and conclusions of regulatory compliance presented by the applicant in BBNPP FSAR Tier 2, Section 11.2 using SRP Section 11.2, RG 1.206, 1.109 and 1.113, and the LADTAP II computer code (NUREG/CR-4013).

Request for Additional Information No. 5416

SRP Section: 11.04 - Solid Waste Management System
Application Section: 11.4

11.04-2

In U.S. EPR FSAR, Tier 2, Table 1.8-2 and Section 11.4.2.4, COL Information Item 11.4-3 states that if a need for onsite storage of low-level radioactive waste has been identified beyond that provided in U.S. EPR Standard Design because of unavailability of offsite storage or disposal, the applicant should submit the details of any proposed onsite storage facility to the NRC. Please provide any arrangements for offsite storage for low-level radioactive waste or submit plans for onsite storage.