CCNPP3COLA PEmails

From: Arora, Surinder
Sent: Tuesday, September 29, 2009 1:31 PM
To: 'Poche, Robert'; 'cc3project@constellation.com'
Cc: CCNPP3COL Resource; Wheeler, Larry; Bloom, Steven; Colaccino, Joseph; Hearn, Peter; Biggins, James; Vrahoretis, Susan; Hair, Christopher
Subject: FINAL RAI No. 171 SBPA 2674
Attachments: FINAL RAI 171 SBPA 2674.doc

Rob,

Attached please find the subject request for additional information (RAI). The draft of this RAI was provided to you on September 9, 2009. No clarification phone call was requested on this RAI.

The schedule we have established for review of your application assumes technically correct and complete responses within 30 days of receipt of RAIs. For any RAIs that cannot be answered within 30 days, it is expected that a schedule date for submitting your technically correct and complete response will be provided to the staff within the 30 day period so that the staff can assess how this information will impact the review schedule.

Your response letter should also include a statement confirming that the response does or does not contain any sensitive or proprietary information.

Thanks.

SURINDER ARORA, PE
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Hearing Identifier: CalvertCliffs_Unit3Cola_Public_EX
Email Number: 998

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Subject: FINAL RAI No. 171 SBPA 2674
Sent Date: 9/29/2009 1:31:02 PM
Received Date: 9/29/2009 1:31:02 PM
From: Arora, Surinder

Created By: Surinder.Arora@nrc.gov

Recipients:
"CCNPP3COL Resource" <CCNPP3COL.Resource@nrc.gov>
Tracking Status: None
"Wheeler, Larry" <Larry.Wheeler@nrc.gov>
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"'Poche, Robert'" <Robert.Poche@constellation.com>
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Tracking Status: None

Post Office: HQCLSTR01.nrc.gov

Files	**Size**	**Date & Time**
MESSAGE	1417	9/29/2009 1:31:02 PM
FINAL RAI 171 SBPA 2674.doc	36858	

Options
Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
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Request for Additional Information No. 171 (eRAI 2674)

9/29/2009

Calvert Cliffs Unit 3
UniStar
Docket No. 52-016
SRP Section: 09.02.05 - Ultimate Heat Sink
Application Section: 9.2.9 Raw Water Supply System

QUESTIONS for Balance of Plant Branch 1 (AP1000/EPR Projects) (SBPA)

09.02.05-2

The relevant Commission requirements provided for the review of the raw water supply system (RWSS), and the associated acceptance criteria, are given in Section 10.4.5, "Circulating Water System," of NUREG-0800, Standard Review Plan (SRP) Revision 3 – March 2007, because the RWSS typically provides the make-up water to the circulating water system (CWS) cooling towers. However, for this Calvert Cliffs application, the CWS makeup is a separate system from the RWSS and is included in Section 10.4.5, "Circulating Water System." The Calvert Cliffs' RWSS will be reviewed based on guidance found in SRP Sections 9.2.1,"Station Service Water System," 9.2.4, "Potable and Sanitary Water System," 9.2.5, "Ultimate Heat Sink," and 10.4.5, "Circulating Water System," Review interfaces with other NUREG-0800 sections can also be found in Section 10.4.5 of NUREG-0800. Based on SRP Section 10.4.5, staff acceptance of the design is based on compliance with the requirements of General Design Criterion (GDC) 4, "Environmental and Dynamic Effects Design Bases." Based on SRP Section 9.2.4, staff acceptance of the design is based on compliance with the requirements of GDC 60, "Control of Release of Radioactive Material to the Environment."

The staff reviewed the RWSS description in Calvert Cliffs Nuclear Power Plant (CCNPP) Unit 3 FSAR Section 9.2.9, "Raw Water Supply System," FSAR Section 9.2.5, "Ultimate Heat Sink," along with Figure 9.2-7, "Raw Water and Desalinated Water Supply," and Figure 10.4-3, "Circulating Water System Makeup System (P&ID)," to confirm that the flow paths and components have been identified and described in sufficient detail to enable a full understanding of the system design and operation. The staff found that the system description and drawings are incomplete, inaccurate, or that clarification is needed with respect to the following considerations:

- CCNPP Unit 3 FSAR Table 3.2-1, “Classification Summary for Site-Specific SSC” does not have a code explanation for “UPQ,” desalination/water treatment building.
- Figure 10.4-3, “Circulating Water System Makeup System (P&ID),” does not indicate the RWSS connection.
- RWSS design and operating pressure and temperature are not indicated in the application.
- RWSS design flow rates and heads of the pumps are not specified.
- RWSS normal and peak loads for each major user of the RWSS (i.e., potable water, fire protection, demineralized water, essential service water system (ESWS) cooling tower basin) are not specified
- RWSS piping materials, including buried piping materials, are not specified.
- Figure 9.2-7 does not provide specific locations of the RWSS equipment and major isolation valves to interfacing system, and does not indicate whether the system components are in the yard or buried.
- RWSS chemical treatment and revenant chemicals are not defined and have not been evaluated as non-toxic to the control room boundary.
- The applicant did not provide information about the electrical power for the RWSS. The applicant did not provide information about the electrical power for the desalinated water plant..
- RWSS component, such as RWSS pump starts, based on instrumentation and controls logic is not discussed.
- CCNPP Unit 3 COL Application, Part 10, Table 2.3-25, “Raw Water Supply System Inspection, Tests, Analysis, and Acceptance Criteria,” does not have meter numbers.

The applicant is requested to provide the above information.

09.02.05-3

General Design Criteria (GDC) 4, “Environmental and Dynamic Effects Design Bases,” requires, in part, that structures, systems and components (SSCs) important to safety shall be designed to accommodate the effects of environmental conditions associated with normal operation, maintenance, testing, and postulated accidents. Standard Review Plan (SRP) 10.4.5, “Circulating Water System,” provides guidance stating that,

although the Circulating Water System (CWS) is not safety related, GDC 4 establishes CWS design limits that will minimize the potential for flooding of systems and components important to safety. SRP 10.4.5, Acceptance Criteria 1, states that “means should be provided to prevent or detect and control flooding of safety-related areas so that the intended safety function of a system or component will not be precluded due to leakage from the CWS.”

For the non-safety-related raw water supply system (RWSS), this requires that the potential of flooding resulting from RWSS will not adversely affect SSCs important to safety to perform their safety function.

In Calvert Cliffs Nuclear Power Plant (CCNPP) Unit 3, FSAR Section 9.2.9.4, “Safety Evaluation,” the applicant states that with respect to potential flooding caused by failures of piping or components, the raw water delivery piping and the desalinization plant are located remote from any safety related systems or equipment, except for the lines connecting to the ESWS cooling tower basins. Failures other than at the tower basin connections will not adversely impact safety functions because intervening topography and the plant storm water controls are designed to divert surface water flow, including that which would result from catastrophic failure of the desalinated water storage tank. The connections to the tower basins are made through safety-related motor operated valves, thereby assuring basin integrity under accident conditions. Potential leakage from the desalinated water lines in the essential service water pump houses is controlled, collected and routed away by the floor drains in those structures. These floor drain lines include check valves where necessary to prevent possible backflow from causing flooding that could adversely affect the safety related equipment.

The staff found that the drawing information provided in CCNPP Unit 3 FSAR Figure 1.1-3, “Site Area Map,” Figure 9.2-3, “Normal Makeup, UHS Makeup, Blowdown & Chemical Treatment,” and Figure 9.2-7, “Raw Water and Desalinated Water Supply,” is not in sufficient detail to verify the flooding analysis presented in FSAR Section 9.2.9.4. The applicant is requested to describe the layout and provide adequate drawings of the RWSS to include desalinated water storage tank, and transfer pumps, and their relationship to the four ESWS cooling towers and ESWS pump house, including the

location of the safety-related motor operated valves between the desalinization plant and the ESWS cooling tower basins related to flooding consequences.