CCNPP3eRAIPEm Resource

From: Arora, Surinder
Sent: Monday, August 26, 2013 10:23 AM
To: Infanger, Paul; UNECC3Project@unistarnuclear.com
Cc: CCNPP3eRAIPEm Resource; Segala, John; Wilson, Anthony; Wheeler, Larry; McKenna, Eileen; Hearn, Peter; McLellan, Judith
Subject: CCNPP3 - DRAFT RAI 398 BPTS 7198
Attachments: DRAFT RAI 398 BPTS 7198.docx

Paul,

Attached is Draft RAI No. 398 (eRAI No. 7198) pertaining to section 9.2.5 of the CCNPP3 FSAR. This RAI question is a follow up to the UniStar's responses provided for Questions 09.02.05-30 (RAI 365, eRAI 6582) and 09.02.05-21 (RAI 331, eRAI 6221), both pertaining to the Ultimate Heat Sink (UHS) topic. You have until September 9, 2013, to review the draft RAI question and decide whether you need a conference call to discuss your understanding of the question with the staff. After the clarification phone call (if requested) or after September 9, 2013, this RAI will be finalized and sent to you for your response. You will then have 30 days to provide a technically complete response or an expected response date for the RAI.

Thanks

SURINDER ARORA, PE
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Hearing Identifier: CalvertCliffs_Unit3Col_RAI
Email Number: 321

Mail Envelope Properties (B46615B367D1144982B324704E3BCEED010B0D7BBCCD)

Subject: CCNPP3 - DRAFT RAI 398 BPTS 7198
Sent Date: 8/26/2013 10:23:05 AM
Received Date: 8/26/2013 10:23:07 AM
From: Arora, Surinder

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Files	**Size**	**Date & Time**
MESSAGE	995	8/26/2013 10:23:07 AM
DRAFT RAI 398 BPTS 7198.docx	33730	

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

Request for Additional Information 398 (eRAI 7198)

DRAFT
Issue Date: 08/26/2013
Application Title: Calvert Cliffs Unit 3 - Docket Number 52-016
Operating Company: UniStar
Docket No. 52-016
Review Section: 09.02.05 - Ultimate Heat Sink
Application Section: 9.2.5

QUESTIONS

09.02.05-32

(A) - Follow-up to RAI 365/6582 Question 09.02.05-30

The staff reviewed the applicant's response to Question 09.02.05-30 and has identified additional items that need to be described in the RAI response and/or FSAR.

1. CFD analysis uncertainties are not discussed (e.g., input parameter sensitivities, justification of reported precision of results).
2. Drawings or diagrams of the bounding scenario; distances (horizontal and vertical) between towers and ventilation intakes, and directions (relative to True North and Plant North), are not described.
3. Percentage of time (on an annual basis) that the CCNPP Unit 1 and 2 site was at >22.4 mph for the bounding conditions, whether these wind speed conditions occur during specific times of the year or day, and what wind directions and temperature conditions are associated with these wind speed conditions.
4. Clarify the number of cooling towers in service for the bounding scenarios.
5. The large break LOCA heat load (i.e., the numerical value) was not provided in the response. Specify. Also, explain how this value factors into the CFD analyses determination of cooling tower plume recirculation and interference (if at all) and how it relates to the determination of the cold-water return temperature.

(B) - Follow-up to RAI 331/6221 Question 09.02.05-21

The staff reviewed the applicant's response to Question 09.02.05-21 and has identified additional items that need to be described in the RAI response and FSAR.

1. CFD analysis uncertainties are not discussed (e.g., input parameter sensitivities, justification of reported precision of results).
2. Drawings or diagrams of the bounding scenario; distances (horizontal and vertical) between towers and ventilation intakes, and directions (relative to True North and Plant North), are not described.
3. Clarify the number of cooling towers in service for the bounding scenarios.
4. Other safety-related ventilation systems are not described as having been evaluated for wet bulb effects (i.e., containment building ventilation, annulus building ventilation, and fuel building ventilation).
5. The RAI response discussion related to cooling tower plume and 'cooling tower' or 'cooling towers' is not consistent.
6. "Divisional combination" needs further explanation.
7. FSAR pointers are missing (9.4.1, 9.4.5, 9.4.9, 9.4.11, and 9.5.8).
8. Consider deleting the statement that you confirmed with the EDG vendor in the FSAR.Consider adding statement to FSAR 9.5.8 that UHS cooling tower plume wet bulb interference of 2.2 °F increase above 80 °F wet-bulb was considered in the design of the combustion air for the EDG.
9. Describe why 6 years of onsite measured meteorological data is sufficient. Identify which meteorological conditions (e.g., wind directions, wind speeds and temperatures) were based on 30-years of offsite data or the 6 years of onsite data.
10. The basis for the large break LOCA heat load (194.2 MBTU) was not provided in the response and how it is related to UHS cooling tower plume interactions on safety related HVAC intakes since neutrally buoyant UHS cooling tower discharges were stated to have been assumed.
11. Describe the contribution to cooling tower plume rise due to mechanically-produced momentum from the exhaust fans.
12. Describe the percentage of time (on an annual basis) that the CCNPP Unit 1 and 2 site was at >22.4 mph for the bounding conditions, whether these wind speed conditions occur during specific times of the year or day, and what wind directions and temperature conditions are associated with these wind speed conditions.

13. Describe the wind speeds that are associated with the design-basis dry and/or wet bulb temperatures.
14. Describe in the RAI response why is there no 0% exceedance non-coincident wet-bulb temperature specified in COL Table 2.0-1 or DCD Table 2.1-1 when such a site value (i.e., 85.3 °F) appears to have been used in the CFD plume interference analysis.
15. Identify the CCNPP Unit 1 and 2 meteorological tower wind speed and direction measurement height used for the bases for wind speeds and wind directions as input in the CFD.
16. Describe if temperature and moisture measurements from the onsite meteorological tower are used and, if so, at what elevation(s) of the tower were these measurements made.
17. Identify the base (grade) elevation differences between the UHS cooling towers and the onsite meteorological tower.
18. Consider adding a footnote to COL Table 2.0-1 (which points to FSAR Section 9.2.5.3.3) that the cooling tower plume interference was calculated to be an increase of 2.2 °F wet-bulb for various safety-related SSCs.
19. Describe in the RAI response that the design changes related to the revised wet bulb effects to the safety-related HVAC intake suction plenum have been evaluated as not being a COL Departure.