From: Bo Pham
To: "Donna Tyner" <dtyner@entergy.com>,"MICHAEL D STROUD" <MSTROUD@entergy.com>
Date: 3/24/2008 3:12:26 PM
Subject: Draft RAI for SAMA
cc: "Kimberly Green" <KJG1@nrc.gov>,"Andrew Stuyvenberg" <ALS3@nrc.gov>,<IPNonPublicHearingFile@nrc.gov>

Donna and Mike,

Attached is a draft request for additional information related to SAMA on the Indian Point license renewal application. Please review and let me know when Entergy is available to discuss. The purpose of the telecon will be to obtain clarification on the staff's questions.

Thanks,

Bo Pham
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Creation Date: 3/24/2008 3:12:26 PM
From: Bo Pham

Created By: BMP@nrc.gov

Recipients
"Kimberly Green" <KJG1@nrc.gov>
"Andrew Stuyvenberg" <ALS3@nrc.gov>
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"Donna Tyner" <dtyner@entergy.com>
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Draft Request for Additional Information (RAI)
Regarding the Analysis of Severe Accident Mitigation Alternatives (SAMAs)
for Indian Point Nuclear Generating Unit Nos. 2 And 3

1. The response to RAI 1d addresses why the total loss of service water (SW) is low for both units but does not discuss the reason for Unit 2 having a loss of SW contribution that is nearly an order of magnitude lower than Unit 3. Explain the plant or model features that cause this difference.

2. Explain why the IP3 analysis cases for "DC Power/AFW System Changes," "AC Power Cross-Tie with IP2," and "Backup DC Power Supply" result in no reduction in population dose or offsite economic cost risk (OECR) for the SAMAs considered therein.

3. In ER Tables E.2-3 and E.4-3, the benefit value for Sensitivity Case 3 (Loss of Tourism and Business) is same as for the Baseline Case for a large number of analysis cases. Confirm whether Sensitivity Case 3 values were actually calculated when the reduction in population dose and OECR were below some threshold value. If not, several revised benefit values provided in response to RAI 4e (i.e., columns 2 and 3 of the tables) may understate the benefits for the affected SAMAs. The affected SAMAs include: IP2 SAMAs 4-6, 18, 25-27, 29-32, 34-39, 40, 41-43, 48-50, 56, 59, 63, 64, 67, 68, and IP3 SAMAs 2, 24-26, 28, 29, 32, 33, 35-37, 40, 42, 47, 48, 51, 56, 58, and revised SAMA 30. Update the tables provided in response to RAI 4e, if necessary, to assure that the benefit estimates for the aforementioned SAMAs fully account for the impacts of loss of tourism and business.

4. The response to RAI 2b indicates that steam generator tube ruptures (SGTRs) induced by high primary side pressures following core damage are addressed in the IP2 PRA model using the information from the NUREG-1150 In-Vessel Expert Panel, but does not provide the explicit modeling approach. The response associated with IP3 also does not appear to address this issue. Describe the current IP2 and IP3 modeling approach for thermally-induced SGTR events including the conditional probabilities and the associated conditions used to assess the likelihood of a thermally-induced SGTR (TI-SGTR), and the conditional probabilities for a stuck open main steam safety valve during a TI-SGTR event. Provide the bases for these values.

5. Provide an assessment of the impact on the identification and screening of SGTR-related SAMAs if the conditional probabilities of TI-SGTR (discussed in item 4 above) are increased to values comparable to those reported in NUREG-1570. Provide a further evaluation and discussion of any additional SGTR-related SAMAs that could become potentially cost-beneficial under these assumptions (including the SAMAs addressed by the analysis cases identified in item 2 above) and Entergy's planned follow-up actions regarding these SAMAs.

6. The SAMA analysis for Beaver Valley Power Station identified as potentially cost-beneficial the purchase or manufacture of a "gagging device" that could be used to close a stuck-open steam generator safety value on the ruptured steam generator prior to core damage in SGTR events. Provide an evaluation of the viability of this SAMA for the Indian Point units, including the estimated costs and benefits under the assumptions of items 5 and 8.

7. The response to RAI 4e states that Sensitivity Case 3 with uncertainty results in two

additional SAMAs (009 and 053) for IP2 and one additional SAMA (053) for IP3. Discuss Entergy's planned follow-up actions regarding these additional SAMAs.

8. The response to RAI 5l shows a $236,000 contingency cost as part of the cost breakdown. However, Section 4.21.5.4, "Final Screening and Cost/Benefit Evaluation (Phase II)" of the environmental report states that "the cost estimates for implementing the SAMAs did not include the cost of replacement power during extended outages required to implement the modifications, nor did they include contingency cost associated with unforeseen implementation obstacles." Explain this apparent discrepancy. Identify any other cost estimates in the SAMA analyses that include contingency costs. Provide the impact on the SAMA evaluation if all contingent costs are included.