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To: "Rick Ennis" <RXE@nrc.gov>
Date: 7/13/05 4:41PM
Subject: Proprietary Information in draft RAIs

We have been informed that Draft 5 of the Round 7 RAIs that you forwarded to us contains information proprietary to Continuum Dynamics, Inc. The subject RAIs are designated as EMEB-B-91, 144, and 145. The attached PDF document is a non-proprietary version of these RAIs. The proprietary information should be handled in accordance with the provisions of NRC regulations.

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sensitive are the inferred loads to the cavity loss coefficient?

91. [[

]] Other reports, such as Fluent report TM-675, "CFD Modeling of the Vermont Yankee Steam Dryer," Section 4 (reference Attachment 1 to Supplement No. 29), and GE report NEDC-33191P, Revision 1, "Computational Fluid Dynamics Flow Visualization of Quad Cities Sub-scale Original Dryer Model As a Function of Reynolds Number," page 8-1 (reference Enclosure 1, Attachment 5 to Exelon letter RS-05-059, dated May 6, 2005), show strong evidence that the high-energy fluctuating vortices entering the MSLs are actually coherent over long distances, extending from the MSL inlets back to the steam dryers. [[

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92. Entergy should provide a detailed description of how the acoustic circuit analysis model considered in Attachment 3 to Supplement No. 26 is assembled and solved at each time step, along with documentation of any Quality Assurance processes that:

a) Establish that no numerical transient effects are corrupting the analysis. Is the accuracy of the computations dependent on initial conditions? If so, how many time steps are required before accurate solutions are obtained? Alternatively, are the input time signals adjusted to gradually "ramp up" their amplitudes to avoid numerical transients that corrupt the solution?

b) Explain how the ACA approach responds to coherent and incoherent input signals, particularly those associated with background noise, such as the MSL strain gauge pressure data at frequencies above 50 Hz, as shown in Figures 3 and 4 of Attachment 7 to Supplement No. 26 . Does random background noise lead to conservative, or non-conservative dryer loads at frequencies above 50 Hz?

93. The Quad Cities Unit 2 MSL acoustic pressures inferred from measured strain gauge data are compared to two ACA simulations in Figures 6.4 - 6.6 on pages 26 - 28 of Attachment 3 to Supplement No. 26. On page 22, it states that the simulated and directly measured frequency spectra are similar. However, examination of those spectra (the bottom plots in Figures 6.4 - 6.6) does not substantiate that assertion. Entergy should explain how accurately the ACA methodology simulates the frequency content of the pressure fluctuations. Entergy should further explain how the discrepancies between the frequency content of the measured and simulated MSL pressures in Quad Cities Unit 2 reflect on the accuracy of the simulated pressures on the VYNPS steam dryer, and whether those inaccuracies are accounted for in the acoustic pressure loads used in the VYNPS steam dryer stress analysis.

94. In Section 7 of Attachment 3 to Supplement No. 26, additional in-plant MSL pressure inputs inferred from strain gauge measurements in the Dresden Unit 2 plant are used to

144. [[

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145. [[

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146. The CFD results indicated that the pressure PSD contains more peaks for the 120% of CLTP condition than the 100% of CLTP power condition. It is believed by the Fluent that these peaks were introduced due to the interaction of the turbulent flow with the acoustic loading. Discuss the effects of the interaction between the acoustic and the hydrodynamic loadings on the forcing functions applying to the steam dryer.