August 4, 2006

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
ENTERGY NUCLEAR VERMONT YANKEE, LLC and ENTERGY NUCLEAR OPERATIONS, INC.	)	Docket No. 50-271-OLA
	)	
	)	ASLBP No. 04-832-02-OLA
	)	
(Vermont Yankee Nuclear Power Station)	)	

NRC STAFF'S PROPOSED QUESTIONS FOR EVIDENTIARY HEARING ON NEC CONTENTIONS 3 AND 4

INTRODUCTION

Pursuant to 10 C.F.R. § 2.1207(a)(3)(i)-(ii) and the Atomic Safety and Licensing Board's "Revised Scheduling Order" dated April 13, 2006, at 4, the NRC Staff ("Staff") hereby proposes the following questions for consideration by the Licensing Board in its questioning of witnesses during evidentiary hearings on New England Coalition ("NEC") Contentions 3 and 4.

PROPOSED QUESTIONS ON NEC CONTENTION 3 (LARGE TRANSIENT TESTING)

The Staff understands and is in general agreement with the testimony proffered by Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc. (collectively, "Entergy" or "Applicant") concerning NEC Contention 3,[1] and requires no clarification of that testimony. The Staff proposes the following questions to be propounded to NEC witness Dr. Joram Hopenfeld, concerning his testimony on this contention.[2]

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[1] *See* "Testimony of Craig J. Nichols and Jose L. Casillas on NEC Contention 3 – Large Transient Testing," filed May 17, 2006; "Rebuttal Testimony of Craig J. Nichols and Jose L. Casillas on NEC Contention 3 – Large Transient Testing," filed June 14, 2006.

[2] *See* "Prefiled Written Testimony of Dr. Joram Hopenfeld Regarding Contention 3," dated May 17, 2006; "Declaration of Dr. Joram Hopenfeld in Support of [NEC's] Response to the Statements of Position of Entergy and NRC Staff," dated June 14, 2006.

A. Witness Qualifications.

The witness does not identify any specific familiarity, expertise, or experience using or formally reviewing the ODYN Code, or any experience with large transient testing or transients at boiling water reactors ("BWRs"). The following questions are proposed to explore his knowledge and familiarity with the ODYN Code and BWR large transient testing, and to establish the reliability of his testimony concerning these matters.

1. Identify any experience the witness has had in operating or inspecting BWRs.

2. Determine whether the witness has been involved in responding to or assessing a licensee's response to a large transient at any BWR.

3. Identify any instance in which the witness was involved in conducting large transient testing, or comparing large transient test results with an actual transient response.

4. Identify any experience the witness has had in using, reviewing, or benchmarking the ODYN Code. Determine his familiarity with the ODYN Code.

5. Determine the witness' knowledge of the benchmarking that has been performed for the ODYN Code, and whether that Code has been accepted for use by the NRC.

6. Determine whether the witness believes the ODYN Code has not been benchmarked or qualified.

7. Has the witness read the Staff's Safety Evaluation ("SE") for ODYN (NEDO-24154-A), provided by the Staff and Applicant on June 19, 2006? [3] Did he review that SE prior to filing his testimony?

8. On page 8 of his Declaration of June 14, 2006, the witness states that "according to ENVY the ODYN code is a one-dimensional code," and that "[t]his characterization is confirmed in the NRC Staff Statement of Position." This statement seems to indicate that the witness lacked personal knowledge that ODYN was a one-dimensional code until informed by Entergy and the Staff. When did the witness become aware that ODYN (the One-Dimensional Dynamic Core Transient Model) was a one-dimensional code? Did he become aware of this after submitting his testimony?

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[3] *See* "Entergy's Supplement to Direct Testimony on NEC Contentions 3 and 4," dated June 19, 2006; "NRC Staff's Supplement to Its Initial Testimony Concerning NEC Contentions 3 and 4," dated June 19, 2006; and letter from Sherwin E. Turk to the Licensing Board, dated June 20, 2006.

B. Bases for the Witness' Opinions.

9. Confirm that the witness did not raise a concern with the one-dimensional aspect of ODYN in any document submitted in this proceeding prior to submitting his Declaration of June 14, 2006. Why was this concern not identified previously?

10. In answer 10 of his written testimony of May 17, 2006, the witness calls ODYN "a computer code of unknown accuracy." Does he have any basis to disagree with the conclusions of the Staff's SE (NEDO-24154-A) regarding the acceptability of the ODYN Code?

11. In answer 11 of his written testimony of May 17, 2006, the witness states that "ODYN predictions must be compared with Peach Bottom data." Has he read the testimony of the Staff and Entergy? Does he now recognize that such comparisons have been performed?

12. On page 5 of his Declaration of June 14, 2006, the witness states that "in discussing the benchmarking of the ODYN code, ENVY provided no comparison of experimental data with code predictions nor did ENVY describe in sufficient details how the code was qualified." If he has reviewed the Staff's SE for ODYN (NEDO-24154-A), does he agree that this information has been provided?

13. On page 6 of his Declaration of June 14, 2006, the witness describes statements made by Entergy and the Staff in their testimony and their documentary submittals, regarding the benchmarking of the ODYN Code that has been performed. Does the witness have any independent knowledge of this matter apart from what he has learned from the other parties' testimony and submittals?

PROPOSED QUESTIONS ON NEC CONTENTION 4
(SEISMIC ANALYSIS OF ACS COOLING TOWER)

The Staff understands and is in general agreement with the testimony proffered by the Applicant concerning NEC Contention 4,[4] and requires no clarification of that testimony. The Staff proposes the following questions to be propounded to NEC witness Dr. Ross B. Landsman, concerning his anticipated testimony on NEC Contention 4.[5]

A. Witness Qualifications.

The witness does not identify any specific familiarity, expertise, or experience conducting finite element analyses of the type performed by ABS Consulting. The following questions are proposed to explore his knowledge and familiarity with such analyses, and to establish the reliability of his testimony concerning the ABS Report.[6]

1. Determine whether the witness has conducted a finite element analysis ("FEA") to evaluate the seismic response of a nuclear power plant or other structure. If so, identify when, for whom, and for what purpose.

2. Determine whether the witness is familiar with or has used the SAP2000 finite element analysis computer code that was utilized by ABS Consulting. Has he obtained or reviewed the inputs to the FEA referred to in the ABS Report.

B. Bases for the Witness' Opinions.

3. Determine whether the witness has reviewed the ABS Report in full, and whether he has reviewed the testimony submitted by Entergy and the Staff concerning the ABS Report.

4. Determine whether the witness has modified his views in any manner based on the Applicant's or Staff's testimony or submissions since he filed his Declaration in September 2005.

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[4] *See* "Testimony of George S. Thomas, Paul D. Baughman, Norman A. Roux, Robert D. Fulkerson and Philip L. Westover on Restated NEC Contention 4," dated May 17, 2006.

[5] *See* "Declaration of Dr. Ross B. Landsman Supporting [NEC's] Alternate Cooling system Contention," dated September 19, 2005.

[6] ABS Consulting, "Cooling Tower Seismic Evaluation," Vendor Calculation No. 1356711-C-001, Rev. 1 (April 2005) (hereinafter referred to as the "ABS Report").

5. Repeatedly, Dr. Landsman refers to and adopts the views expressed by Arnold Gunderson in a Declaration filed in August 2005.[7] *See, e.g.*, Landsman Declaration, ¶¶ 8, 9, 10, 11, 12, and 13 (adopting Mr. Gunderson's allegations); *id.*, ¶ 14, 15, 16, 17, 18, and 19 (reciting Mr. Gunderson's allegations without attribution). Confirm that the witness' testimony identifies no strengths or weaknesses in the ABS Report other than the flaws alleged by Mr. Gunderson.

6. At page 10 of its statement of position dated June 14, 2006, NEC states that Entergy has made a "startling revelation," in that, "with an open header pipe, what is to guarantee delivery of cooling water to the top of the cooling tower fill." It further claims that Entergy is stating that "a seismic resistance design feature of the alternate cooling system is loss of operability." NEC thus appears to believe the 60-in. header pipe is part of the ACS and must remain operable following a safe shutdown earthquake ("SSE"). In fact, this pipe is a non-safety related system whose functionality need not be maintained during and after an SSE; there is a separate safety-related plant service water piping system that is intended to guarantee delivery of service water to the top of the cooling tower fill in the CT2-1 cell. Is Dr. Landsman familiar with the ACS system? Does he believe that the 60-in. header pipe is part of a safety related system?

7. Determine whether Dr. Landsman has inspected the Vermont Yankee cooling towers or the ACS system, prior to filing his Declaration, and prior to the site visit conducted by the Licensing Board in September 2006.

8. Determine the bases for Dr. Landsman's assertions that ABS did not conduct a physical examination of the ACS cooling tower.

9. Determine the bases for Dr. Landsman's assertions, in ¶¶ 8-9, 12 and 15 of his Declaration, that the ACS cooling tower members are significantly degraded due to "aging and/or moisture and/or cooling system chemicals and/or biotic action" (*Id.*, ¶ 12), or that the ACS cooling tower functions in a harshly caustic or biotic environment.

10. Determine the basis for Dr. Landsman's belief, stated in ¶ 9 of his Declaration, that the ABS Report does not account for the fill in the cooling tower.

11. Determine whether Dr. Landsman has performed any calculations to determine the tensile or compressive loads in a seismic event at Vermont Yankee. Identify any basis to assert that the loads and stresses that would occur in a seismic event actually exceed the values used or determined in the ABS Report.

12. Determine the bases for Dr. Landsman's assertions in ¶ 14 of his Declaration, that the two items identified in NRC Inspection Report 05000271/ 2005003 ("structural steel splices" and cooling basin cement wall) establish significant flaws in the ACS cooling tower – notwithstanding the inspection report's conclusion that these items lack significance.

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[7] "Declaration of Arnold Gunderson Opposing Summary Disposition on [NEC's] Contention 4," dated August 2, 2005.

13. Determine whether Dr. Landsman is aware that the NRC Staff inspection report's reference to "structural steel splices" was an error, as indicated in the Staff's testimony on this contention? [8]

14. Determine the witness' familiarity with accepted damping values for wooden structures, in support of his view that a 5% damping value is non-conservative (Declaration, ¶ 16). Determine whether he has any authoritative basis to dispute the Staff's testimony that NRC practice allows the use of a 10 to 15 percent damping value for wooden structures (Staff Testimony, ¶ 33, at 23).

Respectfully submitted,

/RA/

Sherwin E. Turk
Counsel for NRC Staff

Dated at Rockville, Maryland
this 4th day of August, 2006

[8] "NRC Staff Testimony of David C. Jeng, Steven R. Jones and Richard B. Ennis Concerning NEC Contention 4," dated May 17, 2006 ("Staff Testimony") at 20 n.11.

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CERTIFICATE OF SERVICE

I hereby certify that copies of "NRC STAFF'S PROPOSED QUESTIONS FOR EVIDENTIARY HEARING ON NEC CONTENTIONS 3 AND 4,'" in the above-captioned proceeding have been served on the following by deposit in the United States mail, first class; or as indicated by an asterisk (*), by deposit in the Nuclear Regulatory Commission's internal mail system; and by e-mail as indicated by a double asterisk (**), this 4th day of August, 2006.

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