

May 25, 2006

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

NRC STAFF'S ANSWER TO NEW ENGLAND COALITION'S  
REQUEST FOR LEAVE TO FILE A NEW CONTENTION

INTRODUCTION

Pursuant to 10 C.F.R. § 2.309(h)(1), the NRC Staff ("Staff") hereby responds to "New England Coalition's Request for Leave to File A New Contention" ("Request"), filed by the New England Coalition ("NEC") on April 20, 2006. As set forth below, the Staff submits that NEC's new contention does not demonstrate the existence of a genuine dispute on a material issue of law or fact and is not supported by a sufficient basis as required by 10 C.F.R. § 2.309(f). Further, to the extent that NEC may have intended to challenge the sufficiency of the acoustic modeling and methodology relied upon by Vermont Yankee, it is untimely. For these and other reasons more fully set forth below, the Staff respectfully submits that NEC's Request should be denied and its new late-filed contention should be rejected.<sup>1</sup>

BACKGROUND

This proceeding concerns the application filed by Entergy Nuclear Vermont Yankee, L.L.C. and Entergy Nuclear Operations, Inc. (collectively "Entergy" or "Applicant") for an amendment to the operating license for the Vermont Yankee Nuclear Power Station ("VYNPS")

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<sup>1</sup> This Response is filed pursuant to an extension of time provided by the Licensing Board in its "Order (Granting Unopposed Motion for Extension of Time)," dated April 24, 2006.

or “Vermont Yankee”), to authorize an extended power uprate (“EPU”), increasing the maximum power level by approximately 20%. On July 1, 2004, the Commission published in the *Federal Register* a Notice of Consideration of Issuance and Opportunity for Hearing, which specified, *inter alia*, that any petitions for leave to intervene and contentions concerning the amendment must be filed within 60 days, *i.e.*, by August 30, 2004.<sup>2</sup> NEC timely filed its petition to intervene and its initial contentions on August 30, 2004.<sup>3</sup> On November 22, 2004, the Licensing Board granted NEC’s petition to intervene and admitted several of its initial contentions.<sup>4</sup>

Following the Licensing Board’s ruling on petitions to intervene and initial contentions, the Staff’s review of the requested EPU amendment proceeded. On October 21, 2005, the Staff submitted its Draft Safety Evaluation (“SE”) to the Advisory Committee on Reactor Safeguards (“ACRS”) for its review, and on November 2, 2005, the Staff issued the Draft SE.<sup>5</sup> The ACRS Subcommittee on Thermal-Hydraulic Phenomena conducted public meetings on the EPU amendment on November 15-16 and November 29-30, 2005 – in which NEC’s expert, Dr. Joram Hopenfeld, actively participated on behalf of NEC;<sup>6</sup> and on December 7-9, 2005, the

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<sup>2</sup> “Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc.; Notice of Consideration of Issuance of Amendment to Facility Operating License and Opportunity for a Hearing,” 69 Fed. Reg. 39,976 (2004). The Notice advised that “Nontimely . . . contentions will not be entertained absent a determination by the Commission or the presiding officer of the Atomic Safety and Licensing Board that the . . . contentions should be granted based on a balancing of the factors specified in 10 CFR 2.309(a)(1)(i)-(viii).” *Id.*

<sup>3</sup> “New England Coalition’s Request for Hearing, Demonstration of Standing, Discussion of Scope of Proceeding and Contentions,” dated August 30, 2004.

<sup>4</sup> See *Entergy Nuclear Vermont Yankee, L.L.C., and Entergy Nuclear Operations, Inc.* (Vermont Yankee Nuclear Power Station), LBP-04-28, 60 NRC 548 (2004).

<sup>5</sup> The Staff also published in the *Federal Register* (1) a “Draft Environmental Assessment and Finding of No Significant Impact,” 70 Fed. Reg. 68,106 (Nov. 9, 2005); (2) a “Notice of Consideration of Issuance of Amendment. . . and Proposed No Significant Hazards Consideration Determination,” 71 Fed. Reg. 1774 (Jan. 11, 2006); and (3) a “Final Environmental Assessment and Finding of No Significant Impact,” 71 Fed. Reg. 4614 (Jan. 27, 2006).

<sup>6</sup> NEC’s Request is supported by the “Declaration of Dr. Joram Hopenfeld Supporting New England Coalition’s Proposed New Contention,” dated April 17, 2006 (“Hopenfeld Declaration”), in which  
(continued...)

ACRS full committee conducted a public meeting on the requested amendment. On January 4, 2006, the ACRS issued a letter unanimously approving the EPU amendment.<sup>7</sup> After completing its review, on March 2, 2006, the Staff issued its Final SE (in which it made a No Significant Hazards Considerations determination) along with the requested EPU amendment.<sup>8</sup>

During the past 18 months, litigation on all admitted contentions has likewise proceeded. On February 1, 2005, the Licensing Board issued its "Initial Scheduling Order," in which it established a preliminary schedule for the proceeding.<sup>9</sup> The Applicant then filed several motions seeking the dismissal or summary disposition of certain admitted contentions, which the Licensing Board has now resolved.<sup>10</sup> In addition, NEC filed, and the Licensing Board admitted, NEC's new Contention 4, challenging the adequacy of the Applicant's seismic analysis of the Alternate Cooling System cooling tower cell.<sup>11</sup> On May 17, 2006, the parties

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<sup>6</sup>(...continued)  
he provides basis statements in support of the contention's admission.

<sup>7</sup> See Letter from ACRS Chairman Graham B. Wallis to NRC Chairman Nils J. Diaz, dated January 4, 2006 (ADAMS Accession No. ML060090125).

<sup>8</sup> On March 3, 2006, the Commission declined to stay the Staff's issuance of the requested EPU license amendment. See *Entergy Nuclear Vermont Yankee, L.L.C., and Entergy Nuclear Operations, Inc.* (Vermont Yankee Nuclear Power Station), CLI-06-08, 63 NRC\_\_\_ (March 3, 2006).

<sup>9</sup> The Licensing Board issued a "Revised Scheduling Order" on April 13, 2006, adjusting the dates for filing testimony and subsequent hearing-related activities.

<sup>10</sup> See (1) *Entergy Nuclear Vermont Yankee, L.L.C., and Entergy Nuclear Operations, Inc.* (Vermont Yankee Nuclear Power Station), LBP-06-5, 63 NRC 116 (Jan. 31, 2006) (denying Applicant's motion for summary disposition of NEC Contention 3); (2) *Id.*, LBP-05-24, 62 NRC 429 (2005) (granting summary disposition of NEC's initial Contention 4, as moot); and (3) *Id.*, "Memorandum and Order (Granting Motion to Dismiss State Contention 6)," unpublished (March 15, 2005).

<sup>11</sup> See *Entergy Nuclear Vermont Yankee, L.L.C., and Entergy Nuclear Operations, Inc.* (Vermont Yankee Nuclear Power Station), LBP-05-32, 62 NRC 813 (Dec. 2, 2005) (NEC's new Contention 4). The Licensing Board subsequently issued three decisions clarifying the legal and/or factual scope of NEC's two admitted contentions. See (1) *Entergy Nuclear Vermont Yankee, L.L.C., and Entergy Nuclear Operations, Inc.* (Vermont Yankee Nuclear Power Station), "Memorandum and Order (Clarifying the Legal Scope of NEC Contention 4)," unpublished (April 24, 2006); (2) *Id.*, "Memorandum and Order (Clarifying the Scope of NEC Contention 3)," unpublished (April 17, 2006); and (3) *Id.*, "Memorandum and Order (Clarifying the Factual Scope of NEC Contention 4 and Denying Untimely Motion for Enlargement of Time to File Reply Brief)," unpublished (March 24, 2006).

filed their initial statements of position and testimony concerning NEC's two admitted contentions;<sup>12</sup> and on May 25, 2006, the Licensing Board denied NEC's request for the admission of three other late-filed contentions.<sup>13</sup>

On April 20, 2006, NEC submitted the instant Request, seeking the admission of an additional late-filed contention, based on the recent discovery of cracks in the steam dryer at Quad Cities Nuclear Power Station, Unit 2 ("Quad Cities Unit 2" or "QC2"). For the reasons set forth below, the Staff submits that NEC's new late-filed contention should be rejected.

### DISCUSSION

#### I. Legal Standards for Admission of Late-Filed Contentions

Under Commission regulations, a late-filed contention may be admitted only upon the presiding officer's determination that it should be admitted after balancing the following eight factors, all of which must be addressed in the petitioner's filing:

- (i) Good cause, if any, for the failure to file on time;
- (ii) The nature of the requestor's/petitioner's right under the Act to be made a party to the proceeding;
- (iii) The nature and extent of the requestor's/petitioner's property, financial or other interest in the proceeding;
- (iv) The possible effect of any order that may be entered in the proceeding on the requestor's/petitioner's interest;
- (v) The availability of other means whereby the requestor's/petitioner's interest will be protected;

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<sup>12</sup> In addition, on May 2, 2006 (as modified on May 9, 2006), the State of Vermont Department of Public Service ("State") filed a notice of withdrawal and request for dismissal of its contentions with prejudice. After receiving comments from the parties, on May 23, 2006, the Licensing Board issued an oral ruling in which it approved the settlement agreement executed by Entergy and the State, and granted the State's request for dismissal of its contentions.

<sup>13</sup> See *Entergy Nuclear Vermont Yankee, L.L.C., and Entergy Nuclear Operations, Inc.* (Vermont Yankee Nuclear Power Station), "Memorandum and Order (Ruling on Admissibility of Three Additional Contentions," LBP-06-14, 63 NRC \_\_\_\_ (May 25, 2006).

- (vi) The extent to which the requestor's/petitioner's interests will be represented by existing parties;
- (vii) The extent to which the requestor's/petitioner's participation will broaden the issues or delay the proceeding; and
- (viii) The extent to which the requestor's/petitioner's participation may reasonably be expected to assist in developing a sound record.

10 C.F.R. § 2.309(c).<sup>14</sup> Petitioners seeking admission of a late-filed contention bear the burden of showing that a balancing of these factors weighs in favor of admittance. *Baltimore Gas & Electric Co.* (Calvert Cliffs Nuclear Power Plant, Units 1 & 2), CLI-98-25, 48 NRC 325, 347 (1998) (noting that the Commission has summarily dismissed petitioners who failed to address the factors for a late-filed petition). The first factor, whether good cause exists for the failure to file on time, is entitled to the most weight. *State of New Jersey* (Department of Law and Public Safety), CLI-93-25, 83 NRC 289, 296 (1993). Where no showing of good cause for the lateness is tendered, “petitioner’s demonstration on the other factors must be particularly strong.” *Texas Utilities Electric Co.* (Comanche Peak Steam Electric Station, Units 1 & 2), CLI-92-12, 36 NRC 62, 73 (1992) (quoting *Duke Power Co.* (Perkins Nuclear Station, Units 1, 2, & 3), ALAB-431, 6 NRC 460, 462 (1977)). The fifth and sixth factors, the availability of other means to protect the petitioner’s interest and the ability of other parties to represent the petitioner’s interest, are less important than the other factors, and are therefore entitled to less weight. See *id.* at 74.<sup>15</sup>

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<sup>14</sup> Although these regulations were revised recently (see Final Rule, Changes to Adjudicatory Process, 69 Fed. Reg. 2182 (Jan. 14, 2004)), they incorporate the substance of the Commission’s long-standing late-filed contention requirements. Compare 10 C.F.R. § 2.309(c) and (f)(2), with 10 C.F.R. § 2.714(a)(1)(i)-(v) and (b)(2) (2004); see also 69 Fed. Reg. at 2221.

<sup>15</sup> These factors were addressed in the Licensing Board’s decision in LBP-06-14, issued earlier today, in which the Board discussed the interaction of 10 C.F.R. §§ 2.309(c) and 2.309(f)(2). The Staff has not yet had an opportunity to study this aspect of the Board’s decision in detail.

The Commission's regulations additionally provide that a proposed late-filed contention may be admitted with leave of the presiding officer only upon a showing that:

- (i) the information upon which the amended or new contention is based was not previously available;
- (ii) the information upon which the amended or new contention is based is materially different than information previously available; and
- (iii) the amended or new contention has been submitted in a timely fashion based on the availability of the subsequent information.

10 C.F.R. § 2.309(f)(2).

In addition to fulfilling the requirements of 10 C.F.R. § 2.309(f)(2), a petitioner must also show that the late-filed contention meets the standard contention admissibility requirements of § 2.309(f)(1)(i)-(vi). *See Sacramento Municipal Utility District* (Rancho Seco Nuclear Generating Station), CLI-93-12, 37 NRC 355, 362-363 (1993). This regulation requires a petitioner to:

- (i) provide a specific statement of the issue of law or fact to be raised or controverted;
- (ii) provide a brief explanation of the basis for the contention;
- (iii) demonstrate that the issue raised in the contention is within the scope of the proceeding;
- (iv) demonstrate that the issue raised in the contention is material to the findings the NRC must make to support the action that is involved in the proceeding;
- (v) provide a concise statement of the alleged facts or expert opinions which support the requestor's/petitioner's position on the issue and on which the petitioner intends to rely at hearing, together with references to the specific sources and documents on which the requestor/petitioner intends to rely to support its position on the issue; and
- (vi) provide sufficient information to show that a genuine dispute exists with the applicant/licensee on a material issue of law or fact. This information must include

references to specific portions of the application (including the applicant's environmental report and safety report) that the petitioner disputes and the supporting reasons for each dispute, or, if the petitioner believes that the application fails to contain information on a relevant matter as required by law, the identification of each failure and the supporting reasons for the petitioner's belief.

10 C.F.R. § 2.309(f)(1); emphasis added. A late-filed contention must refer to specific documents and be accompanied by a concise statement of the alleged facts or expert opinion which support the proposed contention. See *Millstone*, CLI-01-24, 54 NRC at 358 (citing *Duke Energy Corp.* (Oconee Nuclear Station, Units 1, 2, & 3), CLI-99-11, 49 NRC 328, 333 (1999)); *Calvert Cliffs*, CLI-98-25, 48 NRC at 348 ("This absence of specificity and support is, without more, a sufficient ground for rejecting the two contentions."). Failure to comply with any of the requirements may be grounds for dismissing a contention. See *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-99-10, 49 NRC 318, 325 (1999).

II. NEC's Proposed New Contention.

NEC's new contention is based upon the recent discovery of cracking in the Quad Cities Unit 2 steam dryer. In its contention, NEC asserts as follows:

The failure of modeling, testing, and analysis, in support of extended power uprate (EPU), to detect or predict recent discovery of a 5 foot crack with multiple branches on the surface of the Quad Cities Unit 2 dryer indicates that the technical basis for ascension power testing at the Entergy Vermont Yankee Nuclear Power Station, largely based on the Quad Cities model and methodology, is flawed and cannot reliably predict steam dryer durability or performance under EPU conditions. Because a cracked or fractured steam dryer can result in an accident, prevent mitigation of an accident, or increase the consequences of an accident, with a major catastrophic effects [sic] on public health and safety, and because Vermont Yankee is proceeding in an unknown condition, the Atomic Safety and Licensing Board, (ASLB) must not permit Vermont Yankee to operate at the EPU conditions until such time as it can be definitively demonstrated that the ascension power testing program at Vermont Yankee has not been invalidated by the experience at Quad Cities.

Request at 2-3. In support of this new proposed contention, NEC states that:



[O]n April 7, 2006, Quad Cities Unit 2 reported that an inspection of the Unit 2 steam dryer revealed a crack, approximately five feet in length with multiple branches in the skirt region of the dryer, plus additional lesser cracks on internal bracing. This dryer had been instrumented with several strain gauges, pressure transducers, and accelerometers, which failed to predict or detect the cracking.

*Id.* at 2. Citing two documents recently published in ADAMS,<sup>16</sup> NEC asserts that the Vermont Yankee power ascension program relies upon the “failed” analytical “modeling and methodology” utilized by Quad Cities Unit 2 for prediction of steam dryer performance during power ascension testing. *Id.* at 2, 10. NEC cites the opinion of its expert, Dr. Joram Hopenfled, in support of its claim that “confidence” in the Quad Cities methodology and modeling “was misplaced,” as shown by the discovery of cracks in the QC2 replacement steam dryer “only after several months of operations.” *Id.* at 10; Hopenfled Declaration at [unnumbered] 3.<sup>17</sup> NEC asserts that the Applicant and Staff are incorrect in concluding that Quad Cities’ failure to predict or detect this cracking “is irrelevant to continued use of the Quad Cities 2 modeling and methodology at Vermont Yankee,” Request at 7, and it challenges the reliability of the “second-

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<sup>16</sup> NEC refers to (1) a document submitted by the Applicant, entitled “Vermont Yankee-Revision 1 to Steam Dryer Monitoring Plan,” dated March 26, 2006 (ADAMS Accession No. ML060930689); and (2) a Staff document entitled “Technical Basis For Continued Power Ascension Of Vermont Yankee Nuclear Power Station Up To 110% Original Licensed Power,” dated April 5, 2006 (ADAMS Accession No. ML060970111). See Request at 3, 5, 7, 10. The Staff’s document of April 5, 2006, is attached hereto as Exhibit 1.

<sup>17</sup> In his Declaration submitted in support of the contention, Dr. Hopenfled states:

The replacement dryer at Quad Cities Unit 2 was subjected to the state of the art Acoustic Circuit Model, (ACM) and stress analysis codes. The NRC was assured time and time again [citations omitted] that the analysis was conservative and that the steam line gauge measurements would preclude any possibility that the loads on the dryer would exceed their design limits. The damage to the replacement dryer only after several months of operations demonstrates that the analytical tools and the monitoring instruments that are currently used to predict vibrations and dryer loads are not sufficiently accurate. . . .

Hopenfled Declaration at [unnumbered] 3.



hand root cause analysis” which had been performed at Quad Cities. *Id.* at 10. In this regard, NEC states:

Even Quad Cities, according to PNO-III-06-010, has yet to make an absolute determination on the cause of the extensive multiple cracks discovered during inspection, “This crack is believed to have been caused by binding difficulties experienced during initial installation last year, but **root cause evaluation is still in process....[and] Evaluations of all cracks and indications are continuing...**” [Emphasis added]. New England Coalition disputes the NRC Staff and Licensee assumptions (contained in the above referenced documents) that there exists defensible technical basis for going forward with ascension power testing on the Quad Cities model until thorough root cause analysis of the Quad Cities Unit 2 failure has been completed and reviewed.

*Id.* at 10-11; emphasis in original.<sup>18</sup>

### III. NEC’s Proposed New Contention Should Be Rejected.

NEC’s proposed new contention is premised entirely upon the March 2006 discovery of cracking in the replacement steam dryer at Quad Cities Unit 2. Significantly, NEC has presented absolutely no basis to challenge the adequacy of the analytical modeling and methodology which it claims are deficient, apart from the discovery of cracking at Quad Cities. Further, while NEC’s contention challenges the reliability of the Quad Cities preliminary root cause analysis, that analysis has now been superseded by the issuance of a final root cause analysis by the Quad Cities licensee (Exelon Generation Co., LLC (“Exelon”)), dated May 16, 2006.<sup>19</sup> As discussed below, the steam dryer cracking at Quad Cities Unit 2 has now been finally determined to be the result of damage to the steam dryer during installation which

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<sup>18</sup> NEC cites a document issued by NRC Region III staff, entitled, “Preliminary Notification of Event or Unusual Occurrence – PNO-III-06-010,” dated April 7, 2006 (ADAMS Accession No. ML060970521) (attached hereto as Exhibit 2). That document indicates that it “constitutes EARLY notice of events of POSSIBLE safety or public interest significance,” and states that “[t]he information is as initially received without verification or evaluation, and is basically all that is known by the Region III staff on this date.” Staff Exhibit 2, at 1; emphasis in original.

<sup>19</sup> See Exelon Report LS-AA-125-1001, Revision 5, “Q2R18 Concerns Related to Steam Dryer,” dated May 16, 2006 (ADAMS Accession No. ML061420307) (referred to herein as the “Final Root Cause Analysis” or “Final RCA”). Exelon’s Final RCA is attached hereto as Exhibit 3.

reduced the dryer material fatigue endurance properties. Accordingly, the cracking could not have been predicted by the analytical modeling and methodology which NEC claims is deficient; further, that cracking should not be expected at Vermont Yankee, which did not experience the installation problems which occurred at Quad Cities. Absent any demonstration that the Quad Cities “modeling and methodology” is deficient, or any reason to believe that Exelon’s final root cause analysis is erroneous, NEC fails to provide sufficient basis for the admission of its new contention, and fails to demonstrate the existence of a genuine dispute of material fact. NEC’s proposed new contention should therefore be rejected.

A. Timeliness of the Contention.

As discussed *supra*, at 2, all contentions in this proceeding were required to be filed by August 30, 2004, except insofar as they are based upon material new information that was not available previously. See 10 C.F.R. § 2.309(f)(2). To the extent that NEC’s new contention is based upon the March 2006 discovery of cracks at Quad Cities Unit 2, the Staff does not contest the timeliness of NEC’s filing.

NEC does not directly assert that the Quad Cities analytical “modeling and methodology,” which is relied upon by the Applicant here, contains some unspecified error or deficiency; rather, NEC relies solely upon the discovery of cracks at Quad Cities Unit 2. However, to the extent that NEC may have intended to challenge the sufficiency of the Quad Cities “modeling and methodology,” it could and should have raised any such challenge when the Applicant indicated that it is utilizing the Quad Cities acoustic modeling approach – long before the discovery of cracks in the replacement steam dryer at QC2 in March 2006.<sup>20</sup> To that

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<sup>20</sup> See, e.g., Letter from Robert J. Wanczyk (Entergy) to NRC Document Control Desk, dated August 1, 2005, “[VYNPS] Technical Specification Proposed Change No. 263 – Supplement No. 30/ [EPU] – Response to Request for Additional Information,” Attachment 3 (“Overview of Steam Dryer Issues”), at 2-4 (ADAMS Accession No. ML052230384); see *also* EPU application Supplements 8, 13, 15, 20, 26, 27, 29, 31, and 33, cited in “Entergy’s Response to New England Coalition’s Request for Leave to File New Contentions,” dated May 1, 2006, at 29.

extent, NEC has failed to demonstrate good cause for the lateness of its filing, as required by 10 C.F.R. § 2.309(c), or that the contention is timely, as required by 10 C.F.R. § 2.309(f)(2).<sup>21</sup>

B. NEC Fails to Satisfy the Requirements of 10 C.F.R. § 2.309(f)(1).

In its proposed new contention, NEC challenges Exelon's preliminary determination of the root cause of the Quad Cities Unit 2 steam dryer cracking, stating that "[e]ven Quad Cities, according to PNO-III-06-010, has yet to make an absolute determination on the cause of the extensive multiple cracks discovered during inspection," and noting that the "root cause evaluation is still in process." Request at 10. In support of this assertion, NEC cites a Staff document issued by NRC Region III on April 7, 2006 (PNO-III-06-010, attached hereto as Staff Exh. 2), in which Region III staff provided a preliminary report on the steam dryer cracking which had been discovered at Quad Cities Unit 2.

NEC's argument concerning the inchoate nature of Exelon's preliminary root cause analysis, reported in PNO-III-06-010 on April 7, 2006, is now moot. On April 10, 2006, the NRC Staff held a conference call with Exelon to discuss the results of the QC2 spring 2006 steam dryer inspection. During this telephone call, Exelon provided information concerning the cracks, as set forth in a series of slides provided for the telephone call.<sup>22</sup> In pertinent part, Exelon indicated that:

- 1) The Quad Cities Unit 2 replacement dryer was installed in May 2005. During fabrication some ovality was created in the skirt region of the dryer. Exelon Slides at 6.
- 2) During the installation, an interference was encountered with the separator guide rods that prevented the dryer from fully seating. *Id.*
- 3) During the removal of the dryer to correct the interference, the dryer impacted the dryer support lugs that are attached to the inside of the reactor vessel. *Id.*

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<sup>21</sup> Indeed, claims of that nature were contained in NEC's other late-filed contention, which the Licensing Board has already rejected on grounds of timeliness. See LBP-06-14, slip op. at 25-26.

<sup>22</sup> See "Quad Cities Unit 2 (QC2) Dryer Update" ("Exelon Slides"), dated April 10, 2006 (ADAMS Accession No. ML061080570) (attached hereto as Staff Exhibit 4).

- 4) Indications of deformation of the steam dryer were observed following the impact event. *Id.*
- 5) During the Spring 2006 Quad Cities Unit 2 steam dryer inspection, an approximate 6 foot crack was found in the dryer skirt and base ring. *Id.* at 23.

During this call, Exelon described its preliminary root cause determination for the steam dryer cracks. Exelon's preliminary assessment was that the installation impact event induced a large torsion load in the skirt base ring and bending load in the skirt plate. *Id.* at 30. The load resulted in plastic deformation of the skirt base ring and skirt plate, which reduced the fatigue endurance limit of the material. *Id.* Pressure oscillation loads from main steam line acoustics provided a cyclic stress necessary to propagate the crack. *Id.* Pressure oscillation loading alone would not have initiated a fatigue crack. *Id.* at 31. Further, Exelon stated its view that the cracking that occurred in the skirt and base ring would not have occurred without the impact event. *Id.* at 41.

Subsequent to the telephone call of April 10, 2006, Exelon completed its Final Root Cause Analysis concerning the Quad Cities Unit 2 steam dryer cracking, and submitted that report to the NRC on May 16, 2006 (attached as Exhibit 3 hereto). Exelon's Final Root Cause Analysis confirms its previous, preliminary conclusion that the root cause of the cracking was the deformation of the steam dryer that occurred during installation in May 2005. Specifically, the Quad Cities Unit 2 Final RCA determined that the root cause for this cracking is related to deformation caused when the dryer skirt base ring caught on the reactor pressure vessel (RPV) dryer support lugs during installation of the steam dryer in May 2005 (referred to as the "lifting event"). Final RCA at 3. While the exact mechanism of initiation of the cracks could not be determined, the Final RCA concludes that the lifting event introduced significant plastic strains that reduced the material's fatigue endurance properties. *Id.* When combined with the cyclic loadings that the dryer experiences during normal operation, fatigue cracking propagated through the skirt base ring and into the dryer skirt panels. *Id.* The lifting event occurred as a

result of changes in design of the installation hardware used in the replacement dryer. *Id.* This change in installation hardware is considered a root cause. *Id.* These changes, combined with widened installation clearances introduced during dryer fabrication (referred to as “ovality”) allowed for enough movement for the dryer to become damaged on the RPV support lugs during removal. *Id.* The widened installation clearance introduced from fabrication ovality is also considered a root cause for the dryer skirt cracking. *Id.*

Analyses completed by General Electric (“GE”) and reviewed by Exelon determined that without the additional stresses and material degradation resulting from the May 2005 lifting event, the operational loads were not sufficient to initiate cracking in the QC-2 dryer skirt plate. *Id.* at 4. Therefore, similar cracking of the QC-2 dryer is not expected to occur in the future. *Id.* In addition, the Unit 1 steam dryer, which did not experience either fabrication ovality or installation lifting events, did not exhibit similar cracking when inspected during its outage in May 2006. *Id.*

NEC’s proposed new contention relies on the assumption that cracking of the Quad Cities Unit 2 steam dryer was the result of flow-induced vibration associated with its EPU. Exelon’s preliminary root cause analysis cited installation problems as being the cause of the cracking, but NEC brushed away that assessment as being merely the “preliminary” result of an “ongoing” evaluation. See Request at 10. However, the Final Root Cause Analysis reaches the same conclusion, and any basis for NEC’s dismissal of that conclusion as merely “preliminary” has now disappeared. As Exelon states in its Final RCA, “without the additional stresses and material degradation resulting from the May 2005 lifting event, the operational loads were not sufficient to initiate cracking in the QC-2 dryer skirt plate.” Therefore, there is no reason to believe that the Quad Cities Unit 2 cracking reflects underlying unreliability of the Acoustic Circuit Model (“ACM”) analysis, as NEC maintains.

As stated above, pursuant to 10 C.F.R. § 2.309(f)(1)(vi), an intervenor is required to “[p]rovide sufficient information to show that a genuine dispute exists with the applicant/licensee on a material issue of law or fact.” An intervenor seeking leave to file a late contention has the burden of presenting “a minimal showing that material facts are in dispute, thereby demonstrating that an ‘inquiry in depth’ is appropriate.” *Yankee Atomic Electric Co.* (Yankee Nuclear Power Station), CLI-96-7, 43 NRC 235, 249 (1996); *Georgia Institute of Technology* (Georgia Tech Research Reactor), CLI-95-12, 42 NRC 111, 118 (1995); *Gulf States Utilities Co.* (River Bend Station, Unit 1), CLI-94-10, 40 NRC 43, 51 (1994); *accord, Nuclear Management Co., LLC* (Palisades Nuclear Plant), LBP-06-10, 2006 NRC LEXIS 56 (March 7, 2006).<sup>23</sup> NEC’s proposed new contention fails to meet these requirements. NEC did not attempt to demonstrate a dispute regarding the ACM modeling and methodology, nor did it identify any dispute with the analysis described in the Region III staff’s preliminary notification. Further, NEC did not attempt to demonstrate any specific deficiency in the Quad Cities Unit 2 analysis, except insofar as it failed to predict the cracking that occurred. By ignoring the preliminary root cause analysis and taking the position that the mere existence of the cracking demonstrates that the Quad Cities acoustic modeling is flawed, NEC failed to make its minimal showing that material facts are in dispute as required by 10 C.F.R. § 2.309(f)(1)(vi). *See, e.g., Entergy Nuclear Vermont Yankee L.L.C. and Entergy Nuclear Operations, Inc.* (Vermont Yankee Nuclear Power Station), LPB-04-28, 60 NRC 548, 568, 569, 571, 576-77 (rejecting State Contention 5 and NEC Contentions 1, 2, and 7).

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<sup>23</sup> The Commission has indicated that the factual support necessary to show that “a genuine dispute” exists at the contention filing stage “need not be of the quality necessary to withstand a summary disposition motion.” However, the Commission has likewise indicated that a contention may not rest merely “on a bald or conclusory allegation” that such a dispute exists. “The protestant must make a minimal showing that material facts are in dispute, thereby demonstrating that an ‘inquiry in depth’ is appropriate.” Statement of Consideration, “Rules of Practice for Domestic Licensing Proceedings -- Procedural Changes in the Hearing Process,” 54 Fed. Reg. 33,168, 33,170-71 (Aug. 11, 1989), *quoting Connecticut Bankers Ass’n v. Board of Governors*, 627 F.2d 245, 251 (D.C. Cir. 1980).

Moreover, NEC fails to challenge any specific aspect of the Quad Cities acoustic modeling and methodology, relied upon at Vermont Yankee, which it believes is deficient. As such, the contention fails to provide “references to specific portions of the application (including the applicant’s . . . safety report) that the petitioner disputes and the supporting reasons for each dispute,” contrary to the requirements of 10 C.F.R. § 2.309(f)(1)(vi). By failing to express any disagreement with the analysis cited in the preliminary notification, NEC failed to demonstrate that further inquiry on the part of the Licensing Board is appropriate.

In attempting to satisfy the contention filing requirements, NEC relies on the April 17, 2006 Declaration by Dr. Joram Hopenfeld to support its new contention. Dr. Hopenfeld’s Declaration, however, is impermissibly speculative and conclusory and, as such, cannot provide an adequate basis for a contention. In his Declaration, Dr. Hopenfeld argues that: (1) Quad Cities Unit 2 used the ACM to analyze stresses on its Unit 2 steam dryer; (2) steam dryer cracking was recently discovered at Quad Cities Unit 2; and (3) while it is possible that the Quad Cities cracking was formed during installation, and its origin is unknowable, it is “quite probable” that flow-induced vibration played a major part in the Quad Cities cracking. Hopenfeld Declaration at 3-4; emphasis added. Next, Dr. Hopenfeld asserts that the methodology used to predict loads on the dryer at Vermont Yankee (*i.e.*, the ACM) is “essentially identical to the methodology used at Quad Cities.” *Id.* at 4. Therefore, according to Dr. Hopenfeld, the recent crack found at Quad Cities “clearly demonstrates” that Entergy cannot adequately assure safe operation of Vermont Yankee at EPU conditions. *Id.* at 4.

Dr. Hopenfeld’s assertions regarding the cause of the Quad Cities cracking, and by extension, the reliability of the ACM methodology, constitute nothing more than mere speculation. Dr. Hopenfeld provides no basis for his conclusory assertion that it is “quite probable” that flow-induced vibration “played a major part in causing the crack to reach a length of 5 ft.” Hopenfeld Declaration at 4. Similarly, no basis is provided for his conclusion that the



Quad Cities Unit 2 experience “clearly demonstrates” that Entergy’s steam dryer load prediction methodology is unsound. *Id.* These conclusory assertions provide nothing more than speculation, and are insufficient to demonstrate the existence of a *genuine* dispute on a material issue of law or fact.

Dr. Hopenfeld’s conclusory and speculative assertions fail to establish a sufficient basis for NEC’s proposed new contention, and fail to demonstrate the existence of a genuine dispute of material fact. In this regard, it is well-established that an intervenor has an obligation to present the factual information and expert opinions necessary to support its contention. *Exelon Generation Co., LLC* (Early Site Permit for Clinton ESP Site), LBP-04-17, 60 NRC 229, 241 (2004).<sup>24</sup> In meeting this requirement, “neither mere speculation nor bare or conclusory assertions, *even by an expert*, alleging that a matter should be considered will suffice to allow the admission of a proffered contention.” *Id.*, citing *Fansteel, Inc.* (Muskogee, Oklahoma Site), CLI-03-13, 58 NRC 195, 203 (2003) (emphasis added). NEC’s proposed contention rests exclusively on the Declaration of Dr. Hopenfeld. Because the Hopenfeld Declaration is impermissibly speculative and conclusory, the contention lacks sufficient basis and fails to demonstrate the existence of a genuine dispute of material fact. Accordingly, NEC’s proposed new contention must be rejected.<sup>25</sup>

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<sup>24</sup> A petitioner’s failure to provide such an explanation regarding the bases of a proffered contention requires that it be rejected. *Clinton ESP*, 60 NRC at 242, citing *Arizona Public Service Co.* (Palo Verde Nuclear Generating Station Units 1, 2, and 3), CLI-91-12, 34 NRC 149, 155 (1991). Where a proffered contention fails to meet the basis requirements, “it is not within the Board’s power to make assumptions of fact that favor the petitioner, nor may the Board supply information that is lacking.” *Id.*, citing *Duke Cogema Stone & Webster* (Savannah River Mixed Oxide Fuel Fabrication Facility), LBP-01-35, 54 NRC 403, 422 (2001); *Georgia Institute of Technology* (Georgia Tech Research Reactor), LBP-95-6, 41 NRC 281, 305 (1995).

<sup>25</sup> Similarly, in the context of summary disposition, it has been held that expert “opinion must be based on the ‘methods and procedures of science’ rather than on ‘subjective belief or unsupported speculation.’” *Duke Cogema Stone & Webster* (Savannah River Mixed Oxide Fuel Fabrication Facility), LBP-05-4, 61 NRC 71, 80 (2005), citing *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 589-90 (1993). As described above, Dr. Hopenfeld’s declaration is speculative and conclusory, and it therefore would not withstand a motion for summary disposition.

CONCLUSION

For the reasons set forth above, the Staff submits that NEC's new contention fails to satisfy the Commission's requirements governing admission of contentions, as set forth in 10 C.F.R. § 2.309(f)(1). Further, to the extent that NEC may have intended to challenge the sufficiency of the ACM modeling and methodology, it fails to meet the timeliness requirements of 10 C.F.R. § 2.309(f)(2). For these reasons, the Staff respectfully submits that NEC's Request should be denied, and its proposed new contention should be rejected.

Respectfully submitted,

*/RA/*

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Counsel for NRC Staff

Dated at Rockville, Maryland  
this 25<sup>th</sup> day of May, 2006

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

CERTIFICATE OF SERVICE

I hereby certify that copies of "NRC STAFF'S ANSWER TO NEW ENGLAND COALITION'S REQUEST FOR LEAVE TO FILE A NEW CONTENTION," 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 25<sup>th</sup> day of May, 2006.

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