



advanced by NEC is inconsistent with the history of this contention, the relevant Board's rulings and the Commission regulations and case law, and must therefore be rejected.

### BACKGROUND

The Alternate Cooling System ("ACS") of the Vermont Yankee ("VY") facility provides an alternate means of cooling in the unlikely event that the service water pumps become unavailable.<sup>2</sup> The ACS has a number of components at various locations,<sup>3</sup> including the north end cell (CT2-1) ("Alternate Cooling System cell") of the West Cooling Tower (Cooling Tower No. 2).<sup>4</sup> The Alternate Cooling System cell and the adjoining cell (CT2-2) (not part of the ACS), are Seismic Class I structures.<sup>5</sup> The remaining cells in the West Cooling Tower and all cells in the East Cooling Tower (also not part of the ACS) are Seismic Class II structures.<sup>6</sup>

One of the contentions originally proposed by NEC was Contention 4, which asserted that the VY extended power uprate ("EPU") applied for by Entergy should not be approved because "Entergy cannot assure *seismic and structural integrity of the cooling towers under uprate conditions, in particular the Alternate Cooling System cell*. At present the minimum

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<sup>2</sup> Declaration of George S. Thomas dated July 10, 2005 ("Thomas Declaration"), ¶ 6. The Thomas Declaration was filed simultaneously with, and in support of, Entergy's Motion to Dismiss as Moot, or in the Alternative, for Summary Disposition of New England Coalition Contention 4, dated July 13, 2005 ("Entergy's Motion to Dismiss").

<sup>3</sup> As the VY Updated Final Safety Analysis Report ("UFSAR") defines it, the ACS includes "a cooling tower cell and fan, cooling tower deep water basin, Residual Heat Removal Service Water (RHRSW) pumps and RHRSW pump motor bearing oil coolers, RHR pump seal, motor coolers, RHR and diesel generator heat exchangers, ECCS Room coolers (RRUs 7-8), and associated piping, valves and instrumentation." UFSAR § 10.8.3. By contrast, NEC describes the system as follows: "[t]he ACS system includes, but is not limited to, towers, fill, structural members and bracing, shear pins and/or tie rods, basins, piping, pumps, valves and controls, fan motors, fan decks and fan gearing, emergency electrical supply, and all components vital to design basis objectives and licensing basis requirements intended to assure operability when the system is called upon in an emergency." New England Coalition's Request for Leave to File a New Contention (Sept. 21, 2005) ("NEC New Contention Request") at 1 n.1. NEC provides no source for its definition.

<sup>4</sup> Thomas Declaration, ¶ 6.

<sup>5</sup> *Id.*, ¶ 7.

<sup>6</sup> *Id.*; VY UFSAR §§ 10.8.3, 12.2.6.4.2.

appropriate structural analyses have apparently not been done.”<sup>7</sup> Neither the contention nor the declaration of NEC’s technical consultant in support thereof mentioned any component of the ACS, except for the Alternate Cooling System cell.<sup>8</sup>

In its Memorandum and Order, LBP-04-28 (Nov. 22, 2004),<sup>9</sup> the Board admitted NEC Contention 4 into this proceeding. As admitted, the contention read:

*The license amendment should not be approved because Entergy cannot assure seismic and structural integrity of the cooling towers under uprate conditions, in particular the Alternate Cooling System cell. At present the minimum appropriate structural analyses have apparently not been done.*

60 NRC at 580 (emphasis added). In admitting the contention, the Board wrote:

The gist of this contention is that a new seismic and structural analysis should be performed to qualify the Vermont Entergy cooling towers for the additional loads that will result from increasing the maximum power by 20%.

\* \* \*

The contention focuses on the alleged need for Entergy to perform a seismic and structural analysis of the cooling towers under the proposed uprated conditions and is thus within the scope of the proceeding.

*Id.* at 573 (footnote omitted). Except for its reference to the Alternate Cooling System cell, the Board made no reference to the ACS in its order.

After NEC Contention 4 was admitted, Entergy completed a new structural and seismic analysis of the cooling towers under EPU conditions that takes into account the cooling tower

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<sup>7</sup> New England Coalition’s Request for Hearing, Demonstration of Standing, Discussion of Scope of Proceeding and Contentions, dated August 30, 2004 (“NEC Request for Hearing”) at 11 (emphasis added).

<sup>8</sup> See Declaration of Arnold Gundersen in Support of Petitioners’ Contentions, dated August 30, 2004 (“Gundersen Declaration”) at 5-7.

<sup>9</sup> *Entergy Nuclear Vermont Yankee L.L.C. and Entergy Nuclear Operations, Inc. (Vermont Yankee Nuclear Power Station), Memorandum and Order (Ruling on Standing, Contentions, and State Reservation of Rights), LBP-04-28, 60 NRC 548 (2004).*

modifications performed as part of the upgrade for EPU operation.<sup>10</sup> The new analysis is contained in the ABS Report. On July 13, 2005, Entergy filed its Motion to Dismiss seeking dismissal of the contention, based partly on the ground that, since the admission of NEC Contention 4 was based on the lack of a seismic/structural analysis of the cooling towers, performance of the analysis contained in the ABS Report had rendered the contention moot.

On September 1, 2005, the Board issued a Memorandum and Order granting Entergy's Motion to Dismiss.<sup>11</sup> The Board ruled: "Given that *the contention was based on the 'need for Entergy to perform a seismic and structural analysis [of the cooling towers under uprate conditions],* ' now that Entergy has performed this analysis, the contention is moot."<sup>12</sup> While dismissing NEC Contention 4 as moot, the Board noted that "[t]o the extent that NEC has specific complaints *regarding Entergy's new seismic and structural analysis* that are within the scope of the EPU application and that satisfy the contention requirements of 10 C.F.R. § 2.309, NEC may now seek leave to file new contentions."<sup>13</sup> Accordingly, the Board granted NEC "leave to file new or amended contentions *challenging the adequacy of Entergy's seismic and structural analysis* within 20 days of the date of this order."<sup>14</sup> The Board's order granting NEC leave to file a new contention made no mention of the ACS (other than the Alternate Cooling System cell), but focused on the ABS Report's analysis of the cooling towers.

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<sup>10</sup> Calculation No. 1356711-C-001, *Cooling Tower ABS Report* (Rev. 1), performed by ABSG Consulting and approved by Entergy on April 12, 2005, as VYC-2413, Rev. 0. A copy of the calculation, minus attachments, was included as Exhibit 2 to the Thomas Declaration. A compact disk containing a copy of the entire calculation and attachments thereto was included as Exhibit 3 to that Declaration. NEC and the Board refer to this calculation as the "ABS Report," and so does this response.

<sup>11</sup> *Entergy Nuclear Vermont Yankee L.L.C. and Entergy Nuclear Operations, Inc.* (Vermont Yankee Nuclear Power Station), Memorandum and Order Granting Motion to Dismiss NEC Contention 4), LBP-05-24, 62 NRC 429 (2005).

<sup>12</sup> *Id.* at 432 (emphasis added, citation omitted).

<sup>13</sup> *Id.* at 433 (emphasis added, footnote omitted).

<sup>14</sup> *Id.* (emphasis added).

This chronology shows that NEC's original Contention 4 and its admission by the Board were entirely based on NEC's challenge to the seismic analysis of the cooling towers. Likewise, the only reason NEC was allowed to submit a new or amended late-filed contention was to enable NEC to challenge the adequacy of the ABS Report's analysis. The Board's September 1, 2005 Order, therefore, framed the permissible scope of any new contention.

On September 21, 2005, NEC filed its New Contention Request. In it, NEC sought admission of a new contention, raising several criticisms of the ABS Report as well as, for the first time, non-specific allegations against the adequacy of the ACS (as NEC defines it) and the seismic qualification of its components beyond those in the Alternate Cooling System cell.

On December 2, 2005, the Board issued its Memorandum and Order (Admitting Intervenor's New Contention), LBP-05-32, 62 NRC \_\_\_\_ (2005). In it, the Board admitted into the proceeding Modified Contention NEC 4, which as restated by the Board, reads:

The Entergy Vermont Yankee [ENVY] license application (including all supplements) for an extended power uprate of 20% over rated capacity is not in conformance with the plant specific original licensing basis and/or 10 CFR Part 50, Appendix S, paragraph I(a), and/or 10 CFR Part 100, Appendix A, because it does not provide analyses that are adequate, accurate, and complete in all material respects to demonstrate that the Vermont Yankee Nuclear Power Station Alternate Cooling System [ACS] in its entirety, in its actual physical condition (or in the actual physical condition ENVY will effectuate prior to commencing operation at EPU), will be able to withstand the effects of an earthquake and other natural phenomena without loss of capability to perform its safety functions in service at the requested increased plant power level.

LBP-05-32, slip op. at 17.

## ARGUMENT

### A. **The Scope of Modified Contention NEC 4 is Defined and Bounded by the New Information that Justified its Admissibility**

In its analysis of the admissibility of NEC's proposed new contention, the Board examined the requirements of 10 C.F.R. §§ 2.309(f)(2)(i)-(iii) with respect to the admissibility of contentions based on new information. The Board identified the ABS Report as the new information that justified NEC's filing of a new contention: "The new contention challenges the sufficiency of the ABS Report, which, because it filled a prior omission, necessarily constitutes 'information . . . not previously available.'"<sup>15</sup> Since the ABS Report is the information not previously available upon which a new contention "can be based," the claims made in a new contention must relate to the ABS Report. See 10 C.F.R. § 2.309(f)(2)(ii); *Duke Energy Corporation* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), LBP-03-17, 58 NRC 221, 232-33 (2003) (denying the admission of an amended contention based on new information because the contention scope exceeded that of the "new information"). Here, with respect to the ACS, the ABS Report addresses only the seismic and structural integrity of the Alternate Cooling System cell and is totally silent as to any other component of the ACS. Therefore, any claims against the ACS (other than the Alternate Cooling System cell) are not based on the ABS Report and accordingly are outside the permissible scope of the new contention. Such claims are also inexcusably late since they deal with portions of the EPU application that have been available on the record of this proceeding, unchanged, since the application was filed.<sup>16</sup>

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<sup>15</sup> LBP-05-32, slip op. at 8 (citation omitted).

<sup>16</sup> To the extent that the contention seeks to challenge the current configuration of the ACS, it is outside the scope of this proceeding. LBP-05-32, slip op. at 3 n. 10; LBP-04-28, 60 NRC at 573 n. 30.

For example, Entergy stated in Supplement 4 to the application, submitted under letter BVY 04-009 dated January 31, 2004, the following information:<sup>17</sup>

SE 2.5.3.4 VY NOTE, Ultimate Heat Sink: VYNPS uses the Connecticut River as its Ultimate Heat Sink (UHS) to provide cooling water for both normal and accident conditions. This cooling water is delivered by both safety and non-safety related portions of the Service Water System (SWS). Additionally, an Alternate Cooling System (ACS) based on a dedicated portion of the VYNPS cooling towers and RHR Service Water (RHRSW) pumps, is available for the remote scenario where either the intake structure or the downstream dam is lost. All of the SWS and ACS have been evaluated for CPPU conditions. The evaluations have included the consideration of the most limiting environmental conditions for the Connecticut River or cooling tower including peak seasonal river and air temperatures. The increased decay heat load associated with CPPU reactor core post-shutdown conditions were included in the evaluations. As a result of the system and equipment analysis, a modification to re-circulate ACS (RHRSW) pump motor cooler water back to the cooling tower instead of discharging it to the river are planned to ensure adequate inventory is available to meet the 7 day requirement associated with the ACS design basis functional scenario. This modification is the result of the increased decay heat. The following conclusions were reached in the VYNPS CPPU UHS and ACS evaluations:

- No SW flow or supply temperature changes are required to support CPPU normal operation.
  - No SW flow or SW supply temperature changes are required to support CPPU LOCA operation.
  - No SW flow or SW supply temperature changes are required to support CPPU Shutdown Events operation.
  - SW system pump NPSH required and available is unchanged.
  - All heat exchangers remain within design temperatures including consideration of tube plugging.
  - The ACS cooling tower (deep basin) inventory is assured with the modification to the ACS pump motor cooler flow.
  - The ACS pump NPSH and capacity are adequate.
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- ACS deep basin temperature remains below 130 °F to protect cooling tower fill.
  - ACS will maintain required loads including its system components, spent fuel pool and torus within required limits.

Thus, it has been Entergy's position from the start that the ACS in its licensed configuration is adequate to perform its safety function and does not need to be changed as part of the proposed uprate.<sup>18</sup> That position had not been previously challenged by NEC, and any such challenge at this late date would be grossly untimely and should be rejected. In addition, the performance of the ACS under uprate conditions has been analyzed by Entergy, demonstrated to be adequate, and not previously controverted by NEC.<sup>19</sup>

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<sup>17</sup> Entergy letter BVY-009, dated January 31, 2004, Attachment 6, at 8-9, ADAMS Accession No. ML040360118 at 214-215.

<sup>18</sup> It is not disputed that the physical modifications to the cooling towers that prompted the new seismic and structural analyses of the Alternate Cooling System cell were due to a Vermont Public Service Board concern over mitigating increased vapor plume visual effects, and were totally unrelated to the ACS. See Gundersen Declaration at 5-6.

<sup>19</sup> Entergy's position that the ACS in its existing, licensed configuration will perform adequately under EPU conditions was restated and expanded on July 30, 2004 in an analysis submitted in response to a Staff request for additional information. See Response to RAI SPLB-A-9, Attachment 2 to letter BVY 04-074, ADAMS Accession No. ML 042160195. NEC has never contested Entergy's analysis.

**B. The Claims in Modified NEC Contention 4 Against the ACS Beyond the Alternate Cooling System Cell are Fatally Vague and Unsupported**

Modified NEC Contention 4 challenges the “ability of the ACS ‘in its entirety’ including, “but . . . not limited to, towers, fill, structural members and bracing, shear pins and/or tie rods, basins, piping, pumps, valves and controls, fan motors, fan decks and fan gearing, emergency electrical supply, and all components vital to design basis objectives and licensing basis requirements intended to assure operability when the system is called upon in an emergency” to “withstand the effects of an earthquake and other natural phenomena without loss of capability to perform its safety functions.”<sup>20</sup> However, neither the contention nor the bases nor the “supporting evidence” allege any specific deficiencies in the ACS or any facts that would suggest that such deficiencies exist. Neither the contention nor the bases asserted in its support identify which analyses are inadequate, inaccurate, or incomplete.<sup>21</sup> NEC also fails to identify which specific components of the system are subject to any alleged deficiencies. Such broad brush allegations, coupled with the expansive, vague and unsupported definition of the ACS propounded by NEC (which, as noted above, is inconsistent with the definition in the UFSAR), do not satisfy the requirement that admissible contentions “must explain, with specificity, particular safety or legal reasons requiring rejection of the contested [application].” *Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station, Units 2 and 3), CLI-01-24, 54 NRC

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<sup>20</sup> NEC New Contention Request at 1.

<sup>21</sup> NEC cites its consultant Dr. Landsman as indicating that his “diligent search” of the VY docket in ADAMS uncovered no documents other than the ABS Report that address the seismic qualifications of the ACS. *Id.* at 4, citing the Declaration of Dr. Ross B. Landsman Supporting New England Coalition’s Alternate Cooling System Contention (September 19, 2005), ¶ 7. Of course, the seismic qualification of the ACS components has been in place since the original licensing of the VY plant and is referenced in various sections of the UFSAR (e.g., Appendix A to UFSAR Chapter 12.)

349, 359-60 (2001); 10 C.F.R. §2.309(f)(1)(vi). Therefore, NEC's attempt to expand the scope of Modified Contention 4 to encompass the entire ACS must be rejected.<sup>22</sup>

**C. NEC Misinterprets the Board's Decision Admitting Modified NEC Contention 4**

NEC reads its Modified Contention 4 as putting in controversy the entirety of the ACS. Such a reading of the admitted contention, however, is not supported by the text of the Board's Memorandum and Order admitting the contention. Throughout its opinion, the Board uses the term "ACS" as a shorthand for the Alternate Cooling System cell. Thus, the Board states:

Originally, there was no seismic analysis of the ACS and NEC asserted that "Entergy cannot assure the seismic and structural integrity" of the ACS because "the minimum appropriate structural analyses" had not been done. NEC Original Petition at 11. Entergy has now done a seismic analysis and NEC is challenging it because it allegedly fails to take into account various factors, such as documentation of the breaking strength of tie rods, the effects of aging mechanisms, moisture and chemicals on the ACS, changes in the ACS since the ABS Report, and non-conservative assumptions about concrete and steel splices.

LBP-05-32, slip op. at 8. The Board also writes:

Our admission of NEC's original Contention 4 made clear that a challenge to the omission or adequacy of a seismic/structural analysis of the ACS for increased loads is both within the scope of this proceeding and material to the findings the NRC must make to support the action.

*Id.*, slip op. at 13. The Board also states:

For example, in response to NEC's allegation that the ABS failed to conduct a physical examination of the ACS and to collect and use field data to see how the actual structures would fare under uprated loads, NEC Request at 6, Landsman Declaration ¶¶ 7, 8, Entergy asserts that ABS conducted a "walk-through inspection" of each cell and "verified that the modeling assumptions were reasonable." Entergy Answer at 17.

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<sup>22</sup> LBP-05-24, 62 NRC at 432. See also *Arizona Public Service Co.* (Palo Verde Nuclear Generating Station, Units 1, 2, and 3), CLI-91-12, 34 NRC 149, 155-56 (1991); *Fansteel, Inc.* (Muskogee, Oklahoma Site), CLI-03-13, 58 NRC 195, 203 (2003); *GPU Nuclear, Inc.* (Oyster Creek Nuclear Generating Station), CLI-00-6, 51 NRC 193, 208 (2000).

*Id.*, slip op. at 14 (footnote omitted). Clearly, then, the only logical reading of the phrase “Alternate Cooling System [ACS] in its entirety” is the Alternate Cooling System cell, not a definition that includes components nowhere mentioned in the ABS Report or by the Board in admitting Modified Contention NEC 4. (Nowhere does the Board refer to the ACS as a whole except in quoting NEC’s proposed contention.) Thus, the phrase “Alternative Cooling System [ACS] in its entirety” in Modified Contention NEC 4 should be read to mean the “Alternate Cooling System cell, in its entirety,” that is, that cell and the associated portions of the West Cooling Tower. Only such a reading would be consistent with the history of the contention and the specific issues that NEC has chosen to raise.

#### CONCLUSION

For the reasons stated, the scope of Modified Contention NEC 4 should be limited to the Alternate Cooling System cell and NEC’s attempt to expand the contention’s scope at this late date should be rejected.

Respectfully submitted,



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