UNITED STATES OF AMERICA NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Alex S. Karlin, Chairman Dr. Richard E. Wardwell Dr. William H. Reed

In the Matter of

ENTERGY NUCLEAR VERMONT YANKEE, L.L.C., and ENTERGY NUCLEAR OPERATIONS, INC.

(Vermont Yankee Nuclear Power Station)

Docket No. 50-271-LR

ASLBP No. 06-849-03-LR

July 8, 2009

Full Initial Decision
(Denying NEC's Motion to File a New Contention)

Before this Atomic Safety and Licensing Board is a motion by the New England Coalition, Inc. (NEC) to file and admit a new contention relating to the application submitted by Entergy Nuclear Vermont Yankee, L.L.C., and Entergy Nuclear Operations, Inc. (collectively, Entergy) to renew their operating license for the Vermont Yankee Nuclear Power Station (VYNPS) in Windham County, Vermont.¹ The motion propounds a single new contention challenging the adequacy of Entergy's recent calculations concerning the environmentally adjusted cumulative usage factor (CUFen) analyses for metal fatigue for the core spray (CS) and reactor recirculation outlet (RO) nozzles. For the reasons stated below, the motion is denied.

¹ Vermont Yankee Nuclear Power Station License Renewal Application (Jan. 25, 2006), ADAMS Accession No. ML060300085 [Application]. Entergy has since supplemented and amended its application several times.

Ι. Background

During the week of July 21, 2008, the Board held an evidentiary hearing in Newfane, Vermont, on NEC's three challenges to the renewal of the VYNPS operating license, and on November 24, 2008, we issued our Partial Initial Decision.² In that decision, we rejected Contentions 3 and 4, finding that Entergy's aging management programs (AMPs) for the steam dryer and flow accelerated corrosion in plant piping, respectively, complied with relevant regulations and provided a reasonable assurance of safety.³ With regard to NEC Contentions 2A and 2B, we found inter alia that the metal fatigue CUFen analyses submitted by Entergy complied with U.S. Nuclear Regulatory Commission (NRC) regulations "in all respects, except one." Id. at (slip op. at 66). The exception involved Entergy's CUFen reanalysis for the CS and RO nozzles. We concluded that these CUFen reanalyses were deficient because of their inappropriate use of a simplified Green's function methodology. Id.

In light of this deficiency, our Partial Initial Decision instructed Entergy either (1) to recalculate the CUFen analyses "in accordance with the [American Society of Mechanical Engineers (ASME)] Code, NUREG 6583 and 5704, and all other regulatory guidance" so as to demonstrate that the time-limited aging analyses are less than unity.⁴ and submit these results to the NRC Staff and NEC, or (2) to submit an adequate AMP for these components. Vermont Yankee, LBP-08-25, 68 NRC at ___ (slip op. at 67). We ruled that, if these analyses were "(1) done in accordance with the above stated guidance and the basic approach used in the Confirmatory CUFen Analysis for the [feedwater (FW)] nozzle, (2) contain no significantly

² Entergy Nuclear Vermont Yankee, L.L.C., and Entergy Nuclear Operations, Inc. (Vermont Yankee Nuclear Power Station), LBP-08-25, 68 NRC ___, __ (Nov. 24, 2008).

³ Our decision with respect to Contention 3 was conditioned on the requirement that Entergy continue to monitor and inspect the steam dryer during the period of extended operation at the intervals specified in GE-SIL-644 Revision 2. <u>Id.</u> at ___ (slip op. at 2-3). ⁴ As we discussed in an earlier decision in this case, if the CUFen metal fatigue analysis

produces a value of greater than unity, then the analysis indicates that the component "would be likely to develop metal fatigue cracks that might affect their function" during the 20 year license renewal period of extended operation (and thus requires an AMP). Entergy Nuclear Vermont Yankee, L.L.C., and Entergy Nuclear Operations, Inc. (Vermont Yankee Nuclear Power Station), LBP-07-15, 66 NRC 261, 264 (2007).

different scientific or technical judgments, and (3) demonstrate values less than unity, then [the Board's portion of] this adjudicatory proceeding" would terminate. <u>Id.</u> If the analyses failed to meet these criteria, then NEC could file new or amended contentions challenging the CUFen analyses. <u>Id.</u> We further required that any new or amended contention "must specifically state how the new analyses are not consistent with the legal requirement and the calculations performed for the feedwater nozzle." <u>Id.</u> at __ (slip op. at 67 n.95). We cautioned NEC, however, that this was not an opportunity to "rehash or renew technical challenges that have already been raised and resolved in this proceeding." <u>Id.</u>

Subsequently, Entergy performed confirmatory CUFen analyses of the CS and RO nozzles, removing the problematic use of the simplified Green's function methodology, and provided copies of these CUFen calculations to the parties on January 8, 2009.⁵ These revised CUFen analyses showed values less than unity for each nozzle. The NRC Staff audited these calculations,⁶ and, as a consequence, on March 10, 2009, Entergy issued its revised final analyses of record for the Confirmatory CUFen Analyses of the CS and RO nozzles (Final CUFen Analyses).⁷ The Final CUFen Analyses concluded that the CUFen values for the CS and RO nozzles are less than unity.

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⁵ Letter from Matias F. Travieso-Diaz, Esq., counsel for Entergy, to the Board and the parties (Jan. 8, 2009). Calculation 0801038.301, Revision 0, "Design Inputs and Methodology for ASME Code Fatigue Usage Analysis of Reactor Core Spray Nozzle;" Calculation No. 0801038.302, Revision 0, "Stress Analysis of Reactor Core Spray Nozzle;" Calculation No. 0801038.303, Revision 0, "Fatigue Analysis of Core Spray Nozzle;" Calculation No. 0801038.304, Revision 0, "Design Inputs and Methodology for ASME Code Fatigue Usage Analysis of Reactor Recirculation Outlet Nozzle;" Calculation No. 0801038.305, Revision 0, "Stress Analysis of Reactor Recirculation Outlet Nozzle;" and Calculation No. 0801038.306, Revision 0, "Fatigue Analysis of Recirculation Outlet Nozzle."

⁶ Letter from Matias F. Travieso-Diaz, Esq., counsel for Entergy, to the Board and the parties (Feb. 26, 2009).

⁷ Letter from Matias F. Travieso-Diaz, Esq., counsel for Entergy, to the Board and the parties (Mar. 10, 2009). Calculation No. 0801038.302, Revision 1, "Stress Analysis of Reactor Core Spray Nozzle;" Calculation No. 0801038.303, Revision 1, "Fatigue Analysis of Reactor Core Spray Nozzle;" Calculation No. 0801038.304, Revision 1, "Design Inputs and Methodology for ASME Code Fatigue Usage Analysis of Reactor Recirculation Outlet Nozzle;" Calculation No. 0801038.305, Revision 1, "Stress Analysis of Reactor Recirculation Outlet Nozzle;" and Calculation No. 0801038.306, Revision 1, "Fatigue Analysis of Reactor Recirculation Outlet

On April 24, 2009, NEC filed the current motion for leave to file a new contention challenging the adequacy of the Final CUFen Analyses.⁸ Entergy and the NRC Staff submitted answers in opposition to the admission of the new contention.⁹ NEC filed a combined reply thereto.¹⁰

II. Legal Standards Governing the Admission of New Contentions

In order to be admitted in a proceeding, a new contention must meet the new or amended contention requirements of 10 C.F.R. § 2.309(f)(2), as well as the general contention admissibility requirements of 10 C.F.R. § 2.309(f)(1). Under the regulations, a new safety contention can be filed, with leave of the Board, upon a showing that (1) the information upon which the new contention is based was not previously available, (2) that information is materially different from previously available information, and (3) the new contention "has been submitted in a timely fashion based on the availability of the subsequent information." In addition, the new contention must meet the general admissibility requirements of 10 C.F.R. § 2.309(f)(1). 12

III. Positions of the Parties

In its current motion, NEC contends that Entergy's Final CUFen Analyses for the CS and RO nozzles are "technically and factually flawed and do not conform to ASME, NRC, or National Laboratory guidance, nor do they fully conform to established engineering practice, or the rules of applied physics." NEC Motion at 1-2. NEC correctly points out that performing a CUFen

Nozzle." Calculation 0801038.301, Revision 0, "Design Inputs and Methodology for ASME Code Fatigue Usage Analysis of Reactor Core Spray Nozzle" was not revised.

⁸ New England Coalition, Inc.'s Motion for Leave to File a Timely New Contention and Motion to Hold in Abeyance Action on this Proposed Contention Until Issuance of NRC Staff Supplemental Safety Evaluation Report (Apr. 24, 2009) [NEC Motion].

⁹ Entergy's Opposition to NEC's Motion to File a Timely New Contention (May 18, 2009) [Entergy Answer]; NRC Staff's Answer in Opposition to NEC's Motion for Leave to File a New Contention (May 19, 2009) [NRC Staff Answer].

¹⁰ New England Coalition's Reply to NRC Staff and Entergy Oppositions to NEC's Motion to File a Timely New Contention (May 26, 2009) [NEC Reply].

¹¹ 10 C.F.R. § 2.309(f)(2)(i)-(iii). For a more detailed analysis of the legal standards governing the admission of new contentions, see <u>Vermont Yankee</u>, LBP-07-15, 66 NRC at 266-67.

¹² For a short discussion of the general admissibility criteria of 10 C.F.R. § 2.309(f)(1)(i)-(vi), <u>see Entergy Nuclear Vermont Yankee</u>, <u>LLC</u>, <u>and Entergy Nuclear Operations</u>, <u>Inc.</u> (Vermont Yankee Nuclear Power Station), LBP-06-20, 64 NRC 131, 146-152 (2006).

analysis requires the use of "engineering discretion in selecting various input values," which involves complex scientific and technical judgment.¹³ In NEC's view, and that of its expert, Dr. Joram Hopenfeld, ¹⁴ the Final CUFen Analyses were "flawed and not conservative," Hopenfeld Decl. at A4, and were not performed "in accordance with the ASME Code, NUREG 6583 and 5704, and all other regulatory guidance." NEC Motion at 5. Dr. Hopenfeld details the various objections that he has to the CUFen analyses, focusing specifically on two issues: the alleged improper consideration of dissolved oxygen levels and alleged miscalculation of the heat transfer coefficients. See Hopenfeld Decl. at A7-A23. While NEC acknowledges that it raised these concerns (and Dr. Hopenfeld testified on them) in the July 21, 2008, evidentiary hearing, it asserts that the 2008 hearing focused on the FW nozzle. According to NEC, however, the "geometries of the RO and CS nozzles are quite different" and require consideration of these "component specific" concerns again. NEC Motion at 6-7.

As part of its motion, NEC asked the Board to hold in abeyance any action on the proposed contention until the NRC Staff issued its Supplemental Safety Evaluation Report (SSER), contending that the SSER would be helpful in "building a record" and "evaluating the merits of NEC's proposed contention." <u>Id.</u> at 7. Entergy and the NRC Staff opposed this request. On May 21, 2009, the NRC Staff issued the SSER, 16 rendering the request moot.

Both Entergy and the NRC Staff oppose the admission of NEC's new contention.

Entergy asserts that the contention contravenes the requirements laid out by the Board for new

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¹³ <u>Id.</u> at 2. <u>See also Vermont Yankee</u>, LBP-08-25, 68 NRC at ___ (slip op. at 66-67) (concluding that CUFens involve complex scientific and technical judgment).

¹⁴ NEC Motion, Exh. A, Declaration of Dr. Joram Hopenfeld in Support of New England Coalition's Motion to File a Timely New or Amended Contention on Entergy's Fatigue Reanalysis (Apr. 22, 2009) [Hopenfeld Decl.].

¹⁵ Entergy and the NRC Staff filed separate motions opposing NEC's motion to hold action on the proposed contention in abeyance until the SSER is issued. Entergy's Opposition to New England Coalition's Motion to Hold Action on Proposed Contention in Abeyance Until Issuance of NRC Staff Supplemental Safety Evaluation Report (May 1, 2009); NRC Staff's Answer in Opposition to NEC Motion to Hold in Abeyance Action on Proposed Contention Until Issuance of NRC Staff Supplemental Safety Evaluation Report (Apr. 30, 2009).

¹⁶ Letter from Lloyd B. Subin, counsel for NRC Staff, to the Board and the parties (May 21, 2009).

contentions and does not meet the general admissibility requirements of 10 C.F.R. § 2.309(f)(1). Entergy Answer at 1-2. Entergy maintains that NEC acknowledges that the Final CUFen Analyses use the same methodology as that employed in the CUFen analysis of the FW nozzle. Id. at 9-10. Entergy also asserts that NEC failed to explain or support its claim that the Final CUFen Analyses were not performed in accordance with the ASME Code and regulatory guidance. Id. at 10. Further, in Entergy's view, the new contention is a "rehash" of previously litigated issues as two of Dr. Hopenfeld's main claims – "the appropriateness of the heat transfer coefficients used to compute stresses" and the "dissolved oxygen level in the reactor water during plant transients" – were discussed at the evidentiary hearing and resolved by the Board in Entergy's favor. Id. at 8, 10-12.

In addition, Entergy observes that NEC's motion only discusses the Final CUFen Analyses for the RO nozzle and makes but a few vague references to the CS nozzle. Id. at 12. Therefore, Entergy argues, the proposed contention, as it relates to the CS nozzle analysis, "must be dismissed outright because it fails to state what factual issues are being controverted with respect to that analysis." Id. at 12-13. In terms of the CUFen analysis for the RO nozzle, Entergy asserts that the contention does not meet the requirements of 10 C.F.R. § 2.309(f)(1)(i), (iv), (v), and (vi).

Entergy also argues that the contention does not meet the admissibility standards for new contentions in 10 C.F.R. § 2.309(f)(2). First, Entergy asserts that NEC failed to address these requirements in its motion. Second, the new information upon which NEC relies, according to Entergy, has been available for nearly two years and was not challenged before.

Id. at 25. Entergy maintains that it used the same technical assumptions and judgments in the Final CUFen Analyses of the CS and RO nozzles as it used in its 2007 CUFen analyses of these nozzles. Id. at 26. NEC failed to challenge these assumptions and judgments at that time so, in Entergy's view, NEC cannot now say that these alleged deficiencies are based on new or materially different information, as required by 10 C.F.R. § 2.309(f)(2)(i) and (ii). Id. at 27.

The NRC Staff faults the contention for failing to comply with 10 C.F.R. § 2.309(f)(1)(ii) and (v) by being vague and failing to explain the basis for the contention or to provide a statement of supporting facts. NRC Staff Answer at 6-7. The Staff asserts that the three challenges that NEC raises in support of the new contention (i.e., Entergy's assumption of no cracks in the RO nozzle, the heat transfer coefficient during forced convection flow, and the heat transfer coefficient during natural convection flow) fail to demonstrate the existence of a genuine dispute on a material issue of law or fact as required by 10 C.F.R. § 2.309(f)(1)(vi). Id. at 7-10. The Staff makes arguments similar to those of Entergy with regard to NEC's failure to demonstrate that the new contention meets the requirements of 10 C.F.R. § 2.309(f)(2) and NEC's alleged attempt to rehash issues that have already been raised and addressed by the Board. Id. at 10-23.

NEC submitted a combined reply to Entergy and the NRC Staff.¹⁷ It denies that the new contention is an attempt to "rehash" any of the technical issues raised with respect to the FW nozzle. NEC Reply at 2. NEC maintains that the issues it raises in the new contention are not untimely because they are being raised in response to the Final CUFen Analyses, a document that was only recently submitted by Entergy. <u>Id.</u> at 4. NEC asserts that the issues it raises deal

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¹⁷ Entergy sought to strike NEC's reply for being untimely, served without an electronic copy sent to Entergy, and exceeding the scope of a reply. Entergy's Motion to Strike New England Coalition's Reply to NRC Staff and Entergy Oppositions to NEC's Motion to File a Timely New Contention (June 2, 2009). NEC responded with various explanations for untimely filing and the failure to send an electronic copy to Entergy. NEC also argued that the reply did not add any amendments to the original petition but simply responded directly to the answers submitted by Entergy and the NRC Staff. New England Coalition's Opposition to Entergy's Motion to Strike New England Coalition's Reply to NRC Staff and Entergy Oppositions to NEC's Motion to File a Timely New Contention (June 8, 2009). In addition, NEC submitted a "post-facto" motion for an extension of time to file its reply. Request for Extension of Time in Which to File New England Coalition's Reply to NRC Staff and Entergy Oppositions to NEC's Motion to File a Timely New Contention (June 8, 2009). Because the Board rejects the new contention in this order, we find it unnecessary to address Entergy's motion to strike and NEC's subsequent filings.

with judgments used in the Final CUFen Analyses that are significantly different than those used in the FW nozzle analysis and material to the final decision of the Board.¹⁸

IV. Board Ruling

The Board denies NEC's motion to file a new contention. We find that NEC failed to satisfy either the requirements specified in our Partial Initial Decision or the new contention pleading requirements of 10 C.F.R. § 2.309(f)(2)(i)-(iii).

In our Partial Initial Decision, the Board laid out three specific requirements for the Final CUFen Analyses. <u>Vermont Yankee</u>, LBP-08-25, 68 NRC ___, ___ (slip op. at 67). First, they must be done in accordance with the approach used in the confirmatory CUFen analysis for the FW nozzle. Second, they should not use significantly different scientific or technical judgments. Finally, the CUFen analyses should demonstrate values less than unity. We ruled that new contentions could be filed only if the Final CUFen Analyses did not meet these requirements. <u>Id.</u> As previously mentioned, we warned that any new contention could not "rehash or renew any technical challenges that have already been raised and resolved in this proceeding (<u>e.g.</u>, dissolved oxygen, outdated equations, etc.), but rather must specifically state how the new analyses are not consistent with the legal requirement and the calculations performed for the feedwater nozzle." <u>Id.</u> at ___ (slip op. at 67 n.95).

NEC did not follow the foregoing requirements, and its motion fails to show that the Final CUFen Analyses were not performed in accordance with the approached used by Entergy in its analysis of the FW nozzle. Instead, Dr. Hopenfeld stresses that the Final CUFen Analyses "methodology was the same" as the prior analyses, and that fact represents a major thrust of his opposition to the Final CUFen Analyses. Hopenfeld Decl. at A6-A7. NEC has both rehashed old arguments (e.g., adequacy of consideration of dissolved oxygen in CUFen analyses and the

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¹⁸ <u>Id.</u> at 4-5; Declaration of Dr. Joram Hopenfeld in Support of New England Coalition's Reply to NRC Staff and Entergy Oppositions to NEC's Motion to File a Timely New Contention (May 22, 2009). Dr. Hopenfeld submits detailed responses to various assertions made by Entergy and the NRC Staff.

appropriateness of the heat transfer coefficients) and has, for the first time, raised new arguments concerning technical assumptions and judgments that have not changed since 2007. We will not allow these issues to be reopened or newly raised at this late date. NEC's motion, and its proposed new contention, do not meet the requirements of the Partial Initial Decision.

For similar reasons, NEC also fails to meet the requirements for new contentions under 10 C.F.R. § 2.309(f)(2)(i)-(iii). Entergy performed refined CUFen analyses for the CS and RO nozzles on August 2, 2007, and a confirmatory CUFen analysis for the FW nozzle on February 15, 2008. The 2007 and 2008 CUFen analyses used the same assumptions and approach that NEC now seeks to challenge in the 2009 confirmatory CUFen analyses for the CS and RO nozzles. NEC had the opportunity to litigate the 2007/2008 analyses in the 2008 evidentiary hearing, and the Board rejected each of NEC's challenges (with the exception of the challenge to the use of the simplified Green's function methodology). Vermont Yankee, LBP-08-25, 68 NRC ___, __ (slip op. at 31-68). During the evidentiary hearing, numerous exhibits and voluminous testimony on these issues were submitted by the parties, and considered by this Board. It is now apparent to us that, despite NEC's current motion, the assumptions used in Entergy's 2008 refined CUFen analyses for the CS and RO nozzles were the same ones used in its 2009 Final CUFen Analyses.

Thus, NEC's challenges to the assumptions made by Entergy are, in essence, challenges that either were made previously and already rejected by the Board, or were not made before and are now not timely. The new contention is based on assumptions that cannot be considered information that was "not previously available" or "materially different than information previously available" and therefore does not meet the requirements of 10 C.F.R. § 2.309(f)(2)(i) or (ii).

V. Order

The Board denies NEC's motion to file and admit a new contention relating to Entergy's application to renew the VYNPS operating license, thus terminating our portion of this

adjudicatory proceeding. This Full Initial Decision shall constitute the final decision of the Commission forty (40) days from the date of its issuance, unless, within fifteen (15) days of its service, a petition for review is filed in accordance with 10 C.F.R. §§ 2.1212 and 2.341(b).¹⁹ Filing of a petition for review is mandatory for a party to exhaust its administrative remedies before seeking judicial review. 10 C.F.R. § 2.341(b)(1).

It is so ORDERED.

FOR THE ATOMIC SAFETY AND LICENSING BOARD²⁰

/RA/

Alex S. Karlin, Chairman ADMINISTRATIVE JUDGE

/RA/

Dr. Richard E. Wardwell ADMINISTRATIVE JUDGE

/RA/

Dr. William H. Reed ADMINISTRATIVE JUDGE

Rockville, Maryland July 8, 2009

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¹⁹ We note, however, that there is still a pending appeal by the NRC Staff of our Partial Initial Decision before the Commission. NRC Staff's Petition for Review of the Licensing Board's Partial Initial Decision, LBP-08-25 (Dec. 9, 2008). The Commission previously denied a petition for review submitted by the Commonwealth of Massachusetts. <u>Entergy Nuclear Generation Co. and Entergy Nuclear Operations, Inc.</u> (Pilgrim Nuclear Power Station), <u>Entergy Nuclear Vermont Yankee, LLC, and Entergy Nuclear Operations, Inc.</u> (Vermont Yankee Nuclear Power Station), CLI-09-10, 69 NRC (June 4, 2009).

²⁰ Copies of this order were sent this date by Internet e-mail transmission to counsel for (1) licensee Entergy; (2) intervenors Vermont Department of Public Service and New England Coalition of Brattleboro, Vermont; (3) the NRC Staff; (4) the State of New Hampshire; and (5) the Commonwealth of Massachusetts.

UNITED STATES OF AMERICA NUCLEAR REGULATORY COMMISSION

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

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing LB FULL INITIAL DECISION (DENYING NEC'S MOTION TO FILE A NEW CONTENTION) (LBP-09-09) have been served upon the following persons by U.S. mail, first class, or through NRC internal mail.

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Hearing Docket

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[Original signed by Evangeline S. Ngbea]

Office of the Secretary of the Commission

Dated at Rockville, Maryland this 8th day of July 2009