

October 1, 2007

**UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION**

Before the Atomic Safety and Licensing Board

DOCKETED
USNRC

October 1, 2007 (10:12am)

In the Matter of)
)
Entergy Nuclear Vermont Yankee, LLC)
and Entergy Nuclear Operations, Inc.)
)
(Vermont Yankee Nuclear Power Station))

Docket No. 50-271-LR
ASLBP No. 06-849-03-LR

OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

**ENERGY'S RESPONSE TO NEC'S MOTION TO FILE
A TIMELY NEW OR AMENDED CONTENTION**

I. INTRODUCTION

Applicants Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc. (collectively "Entergy") submit this response, pursuant to 10 C.F.R. § 2.309(h)(1), to "New England Coalition, Inc.'s (NEC) Motion to File a Timely New or Amended Contention" dated September 4, 2007 ("NEC Motion").¹ For the reasons discussed below, Entergy opposes admission of the new contention proffered by NEC ("New Contention") and further submits, as stated in Entergy's August 6, 2007 "Response to NEC's Motion to File a New or Amended Contention" ("August 6 Response"), that the original NEC Contention 2 in this proceeding ("NEC Contention 2") should be dismissed.

II. NEC'S PROPOSED NEW CONTENTION IS INADMISSIBLE

NEC's proposed new contention falls short of meeting the admissibility requirements set forth in 10 C.F.R. § 2.309(f)(1). In the first place, contrary to 10 C.F.R. § 2.309(f)(1)(i), nowhere in NEC's filing is there a "specific statement of the issue of law or fact to be raised or

¹ Entergy does not dispute that NEC's proposed "new or amended" contention is timely.

controverted.” NEC’s allegation that “the analytical methods employed in Entergy’s CUFen Reanalysis were flawed by numerous uncertainties, unjustified assumptions, and insufficient conservatism, and produced unrealistically optimistic results” (NEC Motion at 3) is impermissibly vague. Admitting such an imprecise, broadly worded contention would allow NEC to raise new claims at will in subsequent pleadings or testimony, and would not provide sufficient notice of the specific alleged deficiencies against which Entergy must defend.

NEC’s failure to clearly state the issues in dispute is compounded by its failure to specify what deficiencies allegedly exist in the Vermont Yankee (“VY”) License Renewal Application (“Application”). As noted above, NEC’s Motion broadly assails the final Entergy calculations of environmentally-assisted fatigue (“EAF”) of metal components at VY.² However, neither the Motion nor the Sixth Declaration of Dr. Joram Hopenfeld (“Hopenfeld Sixth Decl.”), submitted with the NEC Motion, identifies any specific errors or deficiencies in the final EAF calculations.³ Dr. Hopenfeld merely claims that the calculations’ estimates of the cumulative usage factors (“CUFs”) for the 60-year period of the VY operating life as extended after license renewal do not “include information *sufficient to quantify the uncertainties* in the CUFs.” Hopenfeld Sixth Decl., ¶ 20, emphasis added. Dr. Hopenfeld declares himself unable “to quantify the effects of [Entergy’s] key assumptions,” *id.* Instead of pointing out errors or other deficiencies in the final EAF analyses, Dr. Hopenfeld offers a series of unsupported speculations as to what uncertainties

² Those calculations were provided to NEC on August 3, 2007 and were described in the August 2, 2007 Declaration of Terry J. Herrmann (“Herrmann Decl.”) that was included with Entergy’s August 6 Response.

³ Dr. Hopenfeld asserts that Entergy should have performed “careful error analyses to show the admissible range for each variable” but “does not appear to have done so.” Hopenfeld Sixth Decl., ¶ 9. However, he fails to identify what regulatory or industry guidance document calls for the performance of the type of “error analysis” he claims may be lacking.

might exist in the analyses.⁴ Hopenfeld Sixth Decl., ¶¶ 20-26. As was the case with the declaration of another NEC consultant with respect to NEC Contention 3 (Steam Dryer), a statement by an expert that he cannot tell whether a deficiency exists does not support an allegation that the deficiency *does* exist. See Memorandum and Order (Ruling on Motion for Summary Disposition of NEC Contention 3) (September 11, 2007), *slip op.* at 12.

Based on his speculative enumeration of *potential* uncertainties, Dr. Hopenfeld discards the CUFs computed by Entergy and utilizes instead the CUF values included in Section 4.3.3 of the Application, which he admits are “larger by a factor of 2 – 100 than the revised ‘60-Year CUF’ values used in Entergy’s Reanalysis.” *Id.*, ¶ 29. However, as indicated in Table 4.3-3, many of the CUF values presented there were generic values because no plant-specific information had been developed at the time of the Application’s submittal. Dr. Hopenfeld’s assertion that these CUFs “are the existing design basis CUFs for the VYNPS” (*id.*) is thus incorrect. Moreover, the whole point of the reanalysis was to recalculate the CUFs taking into account the specific stresses that the VY components had actually experienced and will experience over the plant’s license term. While he vaguely posits different sources of uncertainty, Dr. Hopenfeld identifies no specific error in the recalculated CUFs, and his resorting to the generic values in Table 4.3-3 raises no genuine, material issue of fact.

Dr. Hopenfeld also criticizes the final EAF calculations by asserting that EAF potential of components at VY should have been assessed using the “equations and data” in NUREG/CR-6909, “Effect of LWR Coolant Environment on Fatigue Life of Reactor Materials,” ANL-06/08

⁴ For example, Dr. Hopenfeld asserts that Entergy uses the ODYN computer code to perform temperature and flow velocities during plant transients, and that “[s]ince the ODYN code has not been benchmarked for the EPU flow rates at VYNPS, temperatures and flow velocities calculated using this model *are subject to uncertainties.*” Hopenfeld Sixth Decl., ¶ 25 (emphasis added). However, nowhere in the final EAF calculations does Entergy state that it uses the ODYN code for any purpose whatsoever, and Dr. Hopenfeld’s statement that Entergy’s analysis “does not address how uncertainties in velocities and temperature could affect the identification of the location of the maximum component stress during the transients” (*id.*) is without basis.

(February 2007) (“NUREG/CR 6909”), *available online at* <http://www.nrc.gov/reading-rm/doc-collections/nuregs/contract/cr6909/>. Hopenfeld Sixth Decl. at ¶¶ 15-17, 28-31.

Dr. Hopenfeld concedes, however, (*id.*, ¶ 15) that the methodology used by Entergy in its final calculations is based on the data and formulations for predicting EAF in NUREG/CR-6583 (NUREG/CR-6583 (ANL-97/18), “Effects of LWR Coolant Environments on Fatigue Design Curves of Carbon and Low-Alloy Steels,” March 1998) for carbon and low alloy steels, and in NUREG/CR-5704 (NUREG/CR-5704 (ANL-98/31), “Effects of LWR Coolant Environments on Fatigue Design Curves of Austenitic Stainless Steels,” April 1999) for stainless steels. He also admits that the NRC Staff has established criteria and methodology for performing EAF analyses in Chapter X, “Time Limited Aging Analyses Evaluation of Aging Management Programs Under 10CFR54.21(c)(1)(iii),” Section X.M1 “Metal Fatigue of Reactor Coolant Pressure Boundary,” of the Generic Aging Lessons Learned (GALL) Report, NUREG-1801 (Rev. 1), and that the GALL Report finds that use of NUREG/CR-6583 and NUREG/CR-5704 for performing EAF calculations is “an **acceptable option** for managing metal fatigue for the reactor coolant pressure boundary, considering environmental effects.” Hopenfeld Sixth Decl., ¶ 16, *emphasis in original.*⁵ Dr. Hopenfeld’s argument in favor of the use of NUREG/CR-6909 instead of the methodology endorsed in the GALL Report is that “[i]t would be against the public interest for the NRC to prescribe the use of outdated data when new data are available and are known to the Applicant.” *Id.*

⁵ Indeed, the express purpose of the GALL Report is to provide the technical basis for the evaluation of license renewal applications by the NRC Staff. NUREG-1801, Vol. 2, Rev. 1, Abstract, *available online at* <http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1801/v2/r1/index.html>. “An applicant may reference the GALL report in a license renewal application to demonstrate that the programs at the applicant’s facility correspond to those reviewed and approved in the GALL report and that no further staff review is required.” *Id.*

Dr. Hopenfeld's argument is invalid. The NRC has not accepted or endorsed the use of NUREG/CR-6909 to assess the effects of EAF in the renewal of licenses for existing reactors. Rather, the NUREG/CR-6909 methods are recommended for use *only* in evaluating EAF in new reactors that may seek combined construction and operating licenses at some future date:

Regulatory Guide 1.207 endorses the new stainless steel fatigue design curves presented herein for incorporation in fatigue analyses for new reactors. However, because of significant conservatism in quantifying other plant-related variables (such as cyclic behavior, including stress and loading rates) involved in cumulative fatigue life calculations, the design of the current fleet of reactors is satisfactory.

NUREG/CR-6909, Foreword at v. To hold operating plants like VY to an unapproved standard that is different from the Staff's regulatory positions at the time the VY Application was submitted would not be in "the public interest" but would constitute an impermissible backfit. 10 CFR § 50.109(a)(1).⁶ Moreover, it is clear from the issuance of NUREG/CR-6909 as only guidance for new reactors that the NRC Staff did not deem it necessary to apply it to existing facilities.⁷ A determination that a new, unendorsed standard should be applied to the analysis of the effect of aging of components for license renewal purposes needs to rest on more than the views of an individual, particularly one who has not performed a credible analysis of his own.

Even if NUREG/CR-6909 were applicable, Dr. Hopenfeld has not demonstrated that its use would affect the outcome of the reanalysis. Instead of calculating the Fen for each particular component using the formulae in Appendix A of NUREG/CR-6909, Dr. Hopenfeld simply adopts from the abstract of the report maximum Fen values of 12 and 17 that might apply to materials "under certain environmental and loading conditions." *See* Hopenfeld Sixth Decl., ¶

⁶ At the time the Application was submitted, NUREG-CR/6909 was over a year away from publication. *See* Vermont Yankee Nuclear Power Station, License Renewal Application (January 25, 2006), available in the NRC ADAMS system with Accession No. ML060300085.

⁷ NEC cites no analysis, and Entergy is not aware of any, that determined that there is a need to use the methodology and data in NUREG-CR/6909 for aging analyses of reactors seeking license renewal. Presumably, had such a need existed, it would have been identified in the review process that led to the acceptance of NUREG-CR/6909 for use in the design of new reactors.

31, *quoting* NUREG-CR/6909, Bibliographic Data Sheet, Abstract. Dr. Hopenfeld does not show that such unspecified “environmental and loading conditions” apply to the VY components at issue. He thus provides no basis to apply those factors, which are in some cases significantly higher than those calculated by Entergy, to the VY components. *Compare* Hopenfeld Sixth Decl., ¶ 28, Table 1 *with* Table 3-10 in Exhibit 2 to Herrmann Decl.

To summarize, Dr. Hopenfeld’s suggestion that EAF CUF values for VY’s components exceed unity is based on (1) his use of the prior CUFs from Table 4.3-3 of the Application, several of which were generic rather than VY-specific, without any identification of a specific error in Entergy’s reanalysis, and (2) his use of “maximum” Fen values from an inapplicable guidance document, without any attempt to calculate values actually appropriate for the VY components at issue. Such a sleight of hand does not bring into existence a genuine, material dispute.

Neither Dr. Hopenfeld’s “analysis” nor the NEC Motion satisfy the requirement of 10 C.F.R. § 2.309(f)(1)(vi) that an admissible contention “[p]rovide sufficient information to show that a genuine dispute exists with the applicant/licensee on a material issue of law or fact.” NEC’s proposed New Contention is therefore inadmissible.

III. CONTENTION 2 SHOULD BE DISMISSED

As discussed in Entergy’s August 6 Response, the Commission has held that where a contention alleges the omission of particular information on an issue from an application, and the information is later supplied by the applicant, the contention is moot and must be dismissed.

USEC (American Centrifuge Plant), CLI-06-9, 63 N.R.C. 433, 444 (2006) (*citing Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-02-28, 56 N.R.C. 373, 383 (2002), *citing Duke Energy Corp.* (Catawba Nuclear Station, Units 1

and 2), CLI-83-19, 17 N.R.C. 1041, 1050 (1983)) (footnote omitted). Here, the plant-specific EAF analyses supply the information that NEC alleges was omitted from the Application and Contention 2 has become moot, hence it should be dismissed by the Board on its own accord.⁸

In its reply to Entergy's August 6 Response, NEC argues: "NEC's original Contention 2 is that Entergy's License Renewal Application (LRA) does not include any specific plan to monitor and manage reactor components identified in LRA Table 4.3-3 as vulnerable to environmentally assisted fatigue during the license renewal period. If NEC prevails in its new Contention that Entergy's revised fatigue analysis fails to demonstrate that these components are safe from fatigue failure, then NEC's Contention 2 remains relevant, and the Board should adjudicate it." NEC's "Reply to Entergy and NRC Staff Answers to NEC Motion to File a Timely New or Amended Contention" (Aug. 10, 2007) at 1-2. While NEC's argument is flawed (see below) its converse is certainly true: if NEC's challenge to the final EAF calculations is dismissed, as it should be, the entire fatigue contention would need to be dismissed.

Moreover, even if NEC's New Contention were admitted for litigation, a hearing on the fatigue issue should be limited to the validity of NEC's challenges to the final EAF calculations, whose use is the method selected by Entergy for addressing potential fatigue in components for

⁸ Entergy does not intend to circumvent the Board's June 18, 2007 Order (Setting Deadline for any Motion to Dismiss NEC Contention 2 as Moot) and is not moving to dismiss Contention 2 as moot since it was unable to file such a motion by the July 12, 2007, the deadline set in the Board's June 18 Order. However, mootness is a question of justiciability that is within the province of the Board to determine. *See, e.g., Georgia Institute of Technology* (Georgia Tech Research Reactor, Atlanta, Georgia), LBP-95-19, 42 N.R.C. 191, 195 (1995). Justiciability is jurisdictional and it is well established that, absent compelling reasons, the Commission adheres to the "case" or "controversy" doctrine in its adjudicatory proceedings. *See Texas Utilities Elec. Co.* (Comanche Peak Steam Elec. Station), CLI-93-10, 37 NRC 192, 200 n.28 (1993). Here, Contention 2 is no longer justiciable and the Board should not proceed with its adjudication, since there are no compelling reasons to do so. Furthermore, the Board has the general authority to decide whether Contention 2 remains viable. 10 C.F.R. § 2.309(f); *Yankee Atomic Electric Co.* (Yankee Nuclear Power Station), LBP-96-15, 44 N.R.C. 8, 22 (1996).

which the originally estimated EAF CUFs were greater than unity.⁹ Section 4.3.3 of the Application commits Entergy to manage the effects of aging of such components “[p]rior to entering the period of extended operation” by implementing one or more of the following:

1. “further refinement of the fatigue analysis to lower the predicted CUFs to less than 1.0”;
2. “management of fatigue at the affected location by an inspection program that has been approved by the NRC (e.g., periodic non-destructive examination of the affected locations at inspection intervals to be determined by method acceptable to the NRC)”;
3. “repair or replacement of the affected locations.”

Application at 4.3-7. Since Option 1 has been selected, there is no need to address at a hearing Option 2 of those listed in the Application at 4.3.7 (develop a detailed inspection program for the components in question) or Option 3 (repair or replacement of the affected components).¹⁰

Allegations against Options 2 and 3 would be outside the scope of the hearing.

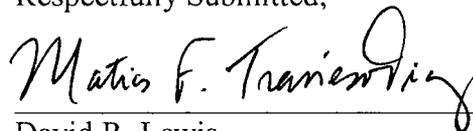
IV. CONCLUSION

NEC’s proposed “new or amended” fatigue contention does not meet the requirements for the admission of contentions in NRC adjudicatory proceedings and should be rejected. In addition, the alleged deficiency in the Application raised by NEC in NEC’s original Contention 2 has been rendered moot by the final fatigue analyses performed by Entergy. Accordingly, NEC Contention 2 should be dismissed by the Board.

⁹ See Entergy letter to the NRC Staff BVS 07-054 dated July 30, 2007, ADAMS Accession No. ML072140847, Attachment 1 at 1.

¹⁰ If implementation of Options 2 or 3 ever became necessary, those options would be implemented in accordance with NRC and industry guidance and the provisions of Entergy’s Quality Assurance Program. BVS 07-054, Attachment 1 at 2.

Respectfully Submitted,



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Dated: October 1, 2007

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NUCLEAR REGULATORY COMMISSION**

Before the Atomic Safety and Licensing Board

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(Vermont Yankee Nuclear Power Station))	

CERTIFICATE OF SERVICE

I hereby certify that copies of "Entergy's Response to NEC's Motion to File a Timely New or Amended Contention" were served on the persons listed below by deposit in the U.S. Mail, first class, postage prepaid, or with respect to Judge Elleman by overnight mail, and where indicated by an asterisk by electronic mail, this 1st day of October, 2007.

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