

June 22, 2006

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

NRC STAFF ANSWER TO REQUEST FOR HEARING OF NEW ENGLAND COALITION

INTRODUCTION

Pursuant to 10 C.F.R. § 2.309(h)(1), the staff of the Nuclear Regulatory Commission ("Staff") hereby answers the "New England Coalition's Request for Hearing, Demonstration of Standing, Discussion of Scope of Proceeding and Contentions," dated May 26, 2006.

("Petition"). As discussed below, the Staff does not contest the standing of the New England Coalition ("NEC" or "Petitioner") to seek a hearing in this matter. Further, for the reasons set forth below, the Staff does not object to the admission of NEC's proposed Contentions 1-2 provided they are limited to the bases raised that are adequately supported and within the scope of license renewal. The Staff objects to the admission of Contentions 3-6.

BACKGROUND

By letter dated January 26, 2006, as supplemented March 15, 2006, Entergy Vermont Yankee, LLC and Entergy Nuclear Operations, Inc. (collectively, "Entergy" or "Applicant") submitted an application, under 10 C.F.R. Part 54, to renew Operating License No. DPR-28 for the Vermont Yankee Nuclear Power Station ("VYNPS").¹ The proposed renewal would authorize the Applicant to operate VYNPS for an additional 20 years beyond the current

¹ See Letter from William F. Maguire, Entergy, to U.S. NRC, dated January 25, 2006 (Agencywide Documents Access and Management System ("ADAMS") Accession Nos. ML 060300082, ML060300085, ML060300086). ("Application" or "Environmental Report"). The application was supplemented by letters dated March 15, 2006 (ML06080023), and May 15, 2006 (ML061380079).

expiration date of March 21, 2012. See “Entergy Nuclear Operations, Inc.; [VYNPS]: Notice of Acceptance of Docketing of the Application and Notice of Opportunity for Hearing Regarding Renewal of Facility Operating License No. DPR-28 for an Additional 20-Year Period,” 71 Fed. Reg. 15220 (Mar. 27, 2006). In response to the notice of acceptance for docketing and opportunity for hearing published in the *Federal Register*, *id.*, NEC timely filed an intervention petition on May 26, 2006, proffering six contentions. See *Petition for Leave to Intervene, Request for Hearing, and Contentions*, at 10-26. NEC subsequently sought permission to adopt contentions filed by the Vermont Department of Public Service and the Massachusetts Attorney General. *New England Coalition’s Notice of Adoption of Contentions, or in the Alternative, Motion to Adopt Contentions*, dated June 5, 2006.²

On June 8, 2006, this Atomic Safety and Licensing Board was established to preside over the proceeding. See “Establishment of Atomic Safety and Licensing Board,” 71 Fed. Reg. 34,397 (June 14, 2006).

DISCUSSION

A. Standing

Any person who requests a hearing or seeks to intervene in a Commission proceeding must establish standing by showing that the person or organization has (or will suffer) a distinct and palpable harm (injury-in-fact) within the zone of interests arguably protected by the governing statute, the injury is traceable to the challenged action, and the injury is redressible by a decision in the proceeding. See, e.g., *Steel Co. v. Citizens for a Better Env’t*, 523 U.S. 83, 103-104 (1998); *Kelley v. Selin*, 42 F.3d 1501, 1508 (6th Cir. 1995); *Private Fuel Storage, LLC* (Independent Spent Fuel Storage Installation, CLI-99-10, 49 NRC 318, 323 (1999)). See also

² The Staff has already responded to NEC’s motion to adopt contentions. See NRC Staff Answer to New England Coalition Notice of Adoption of Contentions or Alternative Motion to Adopt Contentions, dated June 15, 2006.

10 C.F.R. § 2.309(d). An organization may satisfy the standing criteria of 10 C.F.R. § 2.309(d)(1) based on either its own interests or those of its members. An organization that seeks “representational standing” must identify at least one member (by name and address) who has standing to participate, demonstrate how that member may be affected by the licensing action, and show that the organization is authorized to request a hearing on behalf of that member. *GPU Nuclear, Inc. (Oyster Creek Nuclear Generating Station)*, CLI-00-6, 51 NRC 193, 202 (2000).

The Staff does not contest NEC’s demonstration of standing as an organization or representational standing based on the interests of members that reside near the facility. NEC states that its headquarters and property are located within the VYNPS Emergency Planning Zone, the organization’s purpose is to oppose nuclear hazards and advocate alternatives to nuclear power, and the organization is concerned that the proposed license renewal could increase the risk and consequences of an offsite radiological release, impact the value of its property and impair its activities. See Petition at 2-3. NEC also provides statements by an officer and four members (identified by name and address) who authorize the filing of the petition and similarly claim the proposed license renewal could increase the risk and consequences of an offsite radiological release, affect property values and impair their activities. See Petition at 3-5 and Exhibits 1-5 (declarations of Pamela Long, Sarah Kotkov, Sally Shaw, David Deen, and Mary King).³ NEC and its members are located within 10-25 miles of VYNPS and thus satisfy the geographical proximity test for standing in this proceeding.

³ The officer and members also claim that they will be harmed by the 20 percent power uprate amendment. See, e.g., Petition at Exhibit 1, ¶ 7, and Exhibit 2, ¶ 4. The subject matter of the instant proceeding is not the licensing action authorizing the extended power uprate. That uprate is the subject of a separate, ongoing licensing proceeding. See Notice of Hearing and of Opportunity to Make Oral or Written Limited Appearance Statements Concerning Proposed Uprate, Docket No. 50-217-OLA, dated April 10, 2006, 71 Fed. Reg. 19,549 (Apr. 14, 2006).

See *Sequoyah Fuels Corp. & Gen. Atomics* (Gore, Oklahoma), CLI-94-12, 40 NRC 64, 75 n.22 (1994).

B. Legal Standards Governing the Admission of Contentions

To gain admission to a proceeding as a party, in addition to satisfying the criteria for standing, a petitioner must submit at least one admissible contention that meets the requirements of 10 C.F.R. § 2.309(f). See 10 C.F.R. § 2.309(a). The regulations require 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.

10 C.F.R. § 2.309(f). Although the Commission recently revised its Rules of Practice in 10 C.F.R. Part 2, the provisions of § 2.309 "incorporate the longstanding contention support requirements of former § 2.714 — no contention will be admitted for litigation in any NRC adjudicatory proceeding unless these requirements are met." *Changes to Adjudicatory Process*, 69 Fed. Reg. 2,182, 2,221 (Jan. 14, 2004). The Commission has emphasized that its rules on contention admissibility establish an evidentiary threshold more demanding than a

mere pleading requirement and are “strict by design.” *Dominion Nuclear Conn., Inc.* (Millstone Nuclear Power Station, Units 2 & 3), CLI-01-24, 54 NRC 349, 358 (2001). Failure to comply with any of these requirements is 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).

Each contention should refer to the specific documents or other sources of which the petitioner is aware and upon which he or she intends to rely in establishing the validity of the contentions. *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)). A petitioner must submit more than “bald or conclusory allegation[s] of a dispute with the applicant,” but instead “must ‘read the pertinent portions of the license application, . . . and . . . state the applicant’s position and the petitioners opposing view.’” *Millstone*, CLI-01-24, 54 NRC at 358 (quoting Final Rule, “Rules of Practice for Domestic Licensing Proceedings — Procedural Changes in the Hearing Process,” 54 Fed. Reg. 33,168, 33,171, 33,170 (Aug. 11 1989). “The reach of a contention necessarily hinges upon its terms coupled with its stated bases.” *Public Serv. Co. of N.H.* (Seabrook Station, Units 1 & 2), ALAB-899, 28 NRC 93-97 (1988), *aff’d sub nom. Massachusetts v. NRC*, 924 F.2d 311 (D.C. Cir.), *cert. denied*, 502 U.S. 899 (1991). See also *Duke Energy Corp.* (McGuire Nuclear Station, Units 1 & 2; Catawba Nuclear Station, Units 1 & 2), CLI-02-28, 56 NRC 373, 379 (2002). An issue raised by a contention is material if its resolution makes a difference in the outcome of the proceeding. 54 Fed. Reg. 33,168, 33,172.

The scope of a license renewal proceeding is limited in both safety and environmental areas. The scope of Commission review determines the scope of admissible contentions in a renewal hearing absent a Commission finding of special circumstances under 10 C.F.R. § 2.335 (formerly § 2.758). “Nuclear Power Plant License Renewal; Revisions [Final Rule],” 60 Fed. Reg. 22,461, 22,482 n.2. Review of safety issues is limited to “a review of the plant structures and components that will require an *aging* management review for the period of

extended operation and the plant's systems, structures and components that are subject to an evaluation of time-limited *aging analyses*." *Duke Energy Corp.* (McGuire Nuclear Station, Units 1 & 2; Catawba Nuclear Station, Units 1 & 2), CLI-02-26, 56 NRC 358, 363-64 (2002) (citations omitted) (emphasis in original). *See also Dominion Nuclear Conn., Inc.* (Millstone Nuclear Power Station, Units 2 & 3), LBP-04-15, 60 NRC 81, 90 (2004), *aff'd*, CLI-04-36, 60 NRC 631 (2004); *Baltimore Gas & Electric Co.* (Calvert Cliffs Nuclear Power Plant, Units 1 & 2), CLI-98-14, 48 NRC 39, 41 (1998); 10 C.F.R. §§ 54.4, 54.21(a), (c). License renewal focuses on the potential detrimental effects of aging that are not routinely addressed by ongoing regulatory oversight programs. *Florida Power & Light Co.* (Turkey Point Nuclear Generating Plant, Units 3 & 4), CLI-01-17, 54 NRC 3 (2001).

The scope of the environmental review is also limited in accordance with 10 C.F.R. §§ 51.71(d) and 51.95(c). *See Turkey Point*, 54 NRC at 11-13. Consideration of environmental issues in the context of license renewal proceedings is specifically limited by 10 C.F.R. Part 51 and by the NRC's "Generic Environmental Impact Statement (GEIS) for License Renewal of Nuclear Plants" (NUREG-1437) ("GEIS"). *Id.* A number of environmental issues potentially relevant to license renewal are classified in 10 C.F.R. Part 51, Subpart A, Appendix B as "Category 1" issues, which means that "the Commission resolved the[se] issues generically for all plants and those issues are not subject to further evaluation in any license renewal proceeding." *Turkey Point*, LBP-01-06, 53 NRC 138, 152-53, *aff'd*, CLI-01-17, 54 NRC at 11. The remaining issues, designated as "Category 2" in Appendix B, must be addressed by an applicant in its environmental report, and in the NRC's supplemental environmental impact statement for the facility at issue pursuant to 10 C.F.R. §§ 51.71(d) and 51.95(c). *Id.*

C. Staff Response to NEC's Proffered Contentions

NEC's contentions are somewhat difficult to discern because, contrary to 10 C.F.R. § 2.309, not every contention is set off as a separate statement of the issue of law or fact to be

raised or controverted and NEC does not specifically label the bases for its contentions. See Petition at 10-26. Nevertheless, the Staff has attempted to discern the issues raised and the basis for each issue based on the discussions provided.

Contention 1: Whether Entergy's Environmental Report sufficiently assesses the impacts of increased thermal discharges over the requested twenty-year license renewal. [See Petition at 13]

NEC asserts that this issue is within the scope of the proceeding, specific to the application and is material to a finding the NRC must make under NEPA. *Id.* NEC is concerned about a one degree increase in the Connecticut River's temperature and notes that the renewal application contains a statement that thermal discharge effects is a Category 2 issue for plants with once through cooling systems. See *id.* at 11 citing License Renewal Application, Environmental Report at 4-16. NEC disputes the Applicant's statement that the impact of the increased discharge temperature is small since operational and temperature limits are established in the VYNPS National Pollutant Discharge Elimination System (NPDES) permit. See Petition at 11; Environmental Report at 4-17 to 4-18.

NEC relies on the opinion of Dr. Ross Jones, a Ph.D. in ecology/evolutionary biology from Northwestern University, and contends that: 1) water temperature is "critical for American shad and other species" and that one degree increase in current thermal discharges could adversely impact American shad and cause further decline in the species over the next twenty years; 2) the relative importance of thermal discharge and other environmental factors is unknown; 3) recent studies show increased temperatures can adversely affect the physiology and behavior of American shad; 4) an episodic increase in temperature from 68E F to 77E F over 48 hours and an increase from 68E F to 86E F has adverse impacts;⁴ and 5) the impact on aquatic species is not assessed in the Environmental Report; and 6) a study of the effect of

⁴ Dr. Jones provides no information to support his statement that water temperature increases will achieve this level in this short period. See Petition at Exhibit 7, ¶ 6.

thermal discharges on the American Shad's life cycle, as well as unspecified components of the Connecticut River ecology, should be part of Entergy's environmental report and monitoring.

See Petition at 10-14 & Exhibit 6, Declaration of Dr. Ross T. Jones, Ph.D., at 3-7.

The Staff does not object to the admission of this contention to the extent that it alleges that the Application does not contain an assessment of the impact of a one degree increase in thermal discharges on American shad during the renewal period. The Environmental Report, submitted in January 2006, did not include the discharge permit that authorizes the one degree increase and assesses the impacts of such increase, but indicates that the amended permit request was pending. See Environmental Report at 4-18.⁵ Dr. Jones cites studies to support the position that shad are sensitive to water temperatures during migration, spawning and juvenile growth and opines that a one degree increase thermal discharge (combined with atmospheric warming and other pollution) "may adversely impact American Shad and cause further decline over the next twenty years," but does not squarely address why the impacts of the one degree increase would significantly differ from impacts under the prior discharge permit. See Petition, Exhibit 6 at 3-6. Thus, it does not appear that Dr. Jones raises a genuine dispute regarding Entergy's conclusion that, after 30 years of data regarding the impact of its facility on fish and shellfish populations, the impact from heat shock during the license renewal period would be SMALL. See Environmental Report at 4-19. In addition, Dr. Jones acknowledges that recent Connecticut River studies show a "dramatic decline" in the population

⁵ As required by 10 C.F.R. § 51.53(c)(3), Entergy submitted a copy of its then current NPDES permit, which set forth the effluent limitations and monitoring requirements. See License Renewal Application, Appendix E (ML060300086). That permit was amended in March 2006 to authorize a one degree increase in thermal discharge from June 16, through October 14, and included a limitation that VYNPS take action to reduce average hourly temperatures that exceed 85E F. The permitting authority concluded (a) that the authorized limits would assure the protection and propagation of a balanced indigenous population of shellfish, fish and wildlife and (b) that there the proposed increase would have no significant impact on aquatic biota. See Amended NPDES Permit 3-1199, dated March 30, 2006 & attached Fact Sheet (revised March 2006) at 4-7.

size of American shad, but the “relative importance of thermal discharges and other environmental factors is not yet known.” In essence, he questions whether the impact of a one degree increase has been assessed and wants further study of the impact on the American shad’s life cycle, but he does not provide information that disputes Entergy’s conclusion that the impact would be SMALL. See Exhibit 6 at 6-7. Therefore, any basis challenging the adequacy of Entergy’s assessment should be rejected. The contention basis that remains, however, is the alleged absence of an assessment of the impacts of the discharge temperature increase, which can be cured by submission of the amended permit.⁶

NEC’s general assertions about the impact on other aquatic species are not sufficiently supported because the affected species are not identified. Thus, this basis for the contention must be rejected as lacking specificity.

Entergy also specifically states that Part IV of its NPDES permit requires monitoring of American shad. See Application at 4.4.5.2 (at 4-18). To the extent NEC seeks to have the NRC impose requirements for environmental monitoring of shad or other aquatic species, its claim is not redressible in this proceeding because the NRC does not have the authority to impose such conditions. See *Tennessee Valley Authority* (Yellow Creek Nuclear Plant, Units 1 and 2), ALAB-515, 8 NRC 702, 704 & n.6, 706-15 (1978) (Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. § 1251, *et seq.*, assigns the responsibility for water pollution control criteria and regulating polluters to the Environmental Protection Agency and the States). Any concerns about the adequacy of monitoring for American Shad are not admissible in this proceeding.

⁶ The Commission distinguishes contentions that merely allege an omission of information from those that make specific substantive challenges to how particular information is discussed in an application. *Duke Energy Corp. (McGuire Nuclear Station, Units 1 & 2; Catawba Nuclear Station, Units 1 & 2)*, CLI-02-28, 56 NRC 373, 382-83 (2002). Where contentions allege the “omission of particular information or an issue from an application, and the information is later supplied by the applicant . . . the contention is moot.” *Id.* at 383.

Contention 2: Entergy's license renewal application does not include an adequate plan to manage aging of key reactor components due to metal fatigue during the period of extended operation. [See Petition at 14]

As a basis for this contention, NEC asserts that contrary to the requirements of 10 C.F.R. § 54.21(a) and 54.21(c)(iii), the components listed in Table 4.3-3 of the Application will crack due to metal fatigue before the year 2032 and that fatigue and failure are aging phenomena that result from cyclic mechanical and thermal stresses. See Petition at 14-17. NEC also claims that "[f]ailure from fatigue" can lead to pipe ruptures, component malfunction, and loose piece metal migration, which can interfere with safe operation of the facility. *Id.* at 15. At bottom, NEC asserts that the statement in the Application that Entergy will either (1) refine its fatigue analyses to lower the predicted cumulative usage factor (CUF) to less than 1.0, (2) manage fatigue by an NRC-approved inspection program targeted at affected locations, or (3) replace the affected location is "vague, incomplete and lacking in transparency." See Petition at 15-16 citing Application at 4.3-7. NEC also claims an adequate program would include a monitoring plan with a "clear inspection schedule." See Petition at 16. NEC refers to the Declaration of Dr. Joram Hopenfeld (Exhibit 7) at ¶¶ 4-14 to support its position. Dr. Hopenfeld, a mechanical engineer with a doctorate in engineering, asserts that the Application indicates that components will crack from cyclic fatigue during license renewal and that a small leak, if undetected, would either result in pipe rupture or cause a component to malfunction, break up or form loose parts. See Exhibit 7 at ¶¶ 1-2, 4-7. He argues that unless thermal-hydraulic computer codes are properly benchmarked, calculation of cyclic stresses could have large uncertainties and the predicted CUF values in Tables 4.3.3 may be understated. *Id.* at ¶ 9. Dr. Hopenfeld also asserts that Entergy's proposal to refine its fatigue analysis indicates that Entergy used analytical techniques that are "arbitrarily" adjusted, and argues that the Application does not include information about the analytical techniques used to predict CUF

values. See Exhibit 7 at 10-11. Dr. Hopenfeld further claims that Entergy should (1) perform stress analysis to determine whether components should be repaired, replaced or monitored, (2) specify the frequency of monitoring or inspection, and (3) provide information about how the frequency of inspection will be determined. See *id.* at ¶ 13.

The issue of aging effects is within the scope of license renewal, but the contention is supported by a thin basis. NEC does not provide any substantive information regarding why it believes the program is inadequate other than to identify alleged omissions from the application – lack of information on how CUF values were calculated, the frequency of monitoring and inspection, and criteria for determining the inspection frequency. NEC does not provide any information that shows the thermal-hydraulic computer codes used by Entergy to calculate a CUF value were not properly benchmarked or that shows Entergy would “arbitrarily” adjust its calculations. Thus, these bases for the contention are not supported with the requisite specificity and should be rejected.

The Staff does not oppose the admission of this contention provided it is limited to the following bases, *i.e.*, whether Entergy has provided information on how CUF values are calculated and whether Entergy’s aging management plan includes a monitoring plan with an inspection schedule and criteria for the inspection frequency. Subsequent Entergy submissions, however, may render this contention moot. See *Catawba*, CLI-02-28, 56 NRC at 383.

Contention 3: Entergy’s license renewal application does not include an adequate plan to monitor and manage aging of the steam dryer during the period of extended operation, as required by 10 C.F.R. § 54.21(a)(3). [See Petition at 17]

As a basis for this contention, NEC asserts that the steam dryer is a reactor vessel component that is subject to aging management review pursuant to 10 C.F.R. § 54.21(a), that the dryer must remain functional during design basis events (DBEs) in accordance with

10 C.F.R. §50.49(b)(ii), and that flow velocity and increased flow induced vibrations associated with the 20% power uprate can cause the dryer to break up and introduce loose parts into the reactor system. *Id.* at 17-18. NEC further asserts that Entergy's proposed monitoring techniques are not adequate to detect crack propagation growth in that they rely on calculations of computer models - - the Computational Fluid Dynamic Model and Acoustic Circuit Model. Petition at 17 citing Application at 3.1.2.2.11 and Table 3.1.2-2.

NEC relies on statements by Dr. Hopenfeld that: 1) the loose parts problem at Quad Cities after 20% power uprate was caused by the increased flow velocity and flow-induced vibrations; (2) even if Entergy manages cracking in the steam dryer consistent with current guidance in NUREG-1801, "Generic Aging Lessons Learned Report, Revision 1 (September 2005) ("GALL Report"), GE-SIL-644, and possible future evaluation guidance under the BWR Vessels and Internals Project (BWRVIP), Entergy's proposed monitoring techniques are inadequate because they are not based on actual measurements of crack initiation and growth, but "unproven computer models and moisture monitors which only identify existing damage;" and (3) Entergy has not demonstrated that the dryer will stay in tact during the renewal period. See Petition at Exhibit 7, Declaration of Dr. Joram Hopenfeld at ¶¶ 15-20.

This contention raises an issue within the scope of renewal to the extent that it questions whether the two computer models provide an adequate basis for monitoring of crack propagation and growth in the steam dryer to assure it can perform its function during the renewal period. NEC's contention is not adequately supported, however, because Dr. Hopenfeld's conclusory opinions regarding the Computational and Fluid Dynamic Model and the Acoustic Circuit Model are not sufficient to raise a genuine dispute with the Application. He does not provide information to support his position that Entergy's monitoring techniques are not based on actual measurements of crack initiation or growth, or that the computer models

used are unproven.⁷ “[N]either mere speculation nor bare or conclusory assertions, *even by an expert*, . . . will suffice to allow admission of a proffered contention.” *Exelon Generation Co., LLC* (Early Site Permit for Clinton ESP Site), LBP-04-17, 60 NRC 229, 241(2004). A petitioner’s failure to provide an explanation regarding the bases for a proffered contention requires that it be rejected. *Id.* at 242 (citing *Arizona Public Serv. Co.* (Palo Verde Nuclear Generating Station, Units 1, 2 &3), CLI-91-12, 34 NRC 149, 155 (1991)). Therefore this contention should be rejected for a lack of an adequate basis.

Contention 4: Entergy’s license renewal application does not include an adequate plan to monitor and manage aging of plant piping due to flow-accelerated corrosion during the period of extended operation as required by 10 C.F.R. § 54.21(a)(3). [See Petition at 18]

As a basis for this contention, NEC asserts that flow-accelerated corrosion is an aging phenomenon that must be managed as indicated by Staff guidance. Petition at 18 citing GALL Report. Relying on statements by Dr. Hopenfeld, NEC asserts that the use of the computer model, CHECKWORKS, which is recommended in the GALL Report (and Dr. Hopenfeld assumes Entergy will use) to determine the scope and frequency of in-service inspections of components susceptible to flow-accelerated corrosion, is improper because the 20% uprate changes plant parameters such that the model cannot be use to determine the inspection frequency without 10-15 years of inspection data. See Petition at 18-19 and Exhibit 7 at ¶¶ 22-24. Dr. Hopenfeld further asserts that (a) CHECKWORKS is not a mechanistic code, but an

⁷ Dr. Hopenfeld argues that the two models used by Entergy were not benchmarked against properly scaled dryers. See Exhibit 7 at ¶ 19 (citing Advisory Committee on Reactor Safeguards 528th Meeting Transcript [on VYNPS Extended Power Uprate Application], dated December 7, 2005, at 9, 12-14, 25, 29, 60). The cited pages, however, do not contain statements that the models were not properly benchmarked. In fact, statements made during the meeting indicate that Entergy confirmed crack propagation projections by determining that previously identified cracks had not grown, modified its dryers to ensure their structural integrity, added a measurement system to detect acoustic loads (the primary source of dryer degradation) and identified additional indications during a 2004 inspections due to the use of enhanced inspection techniques. See *id.* at 8-16, 27-30.

empirical code that can be used so long as velocity and coolant chemistry do not change “drastically,” (b) CHECKWORKS “must be updated continuously with plant-specific data from inspections” and (c) that 10-15 years of inspection data is needed to predict pipe wall thinning since the wall thinning rate from flow-accelerated corrosion (FAC) is not constant with time and a “considerable number of cycles are needed to establish the FAC rate on a given component at a particular plant.” *Id.* at ¶ 24.

The issue raised by this contention is whether use of CHECKWORKS is appropriate to determine the scope and frequency of inspections to manage aging effects caused by FAC. Dr. Hopenfeld’s conclusory assertions that 10-15 years of site-specific inspection data is required for CHECKWORKS are unsupported and provide no basis for this contention. See *Clinton, supra*, at 241. The GALL Report indicates that CHECKWORKS was developed and benchmarked using data from many plants and that the model is used to identify the most susceptible locations within a given piping system. See GALL Report, Section XI.M17. Entergy states that, consistent with GALL, its flow-accelerated corrosion program is based on EPRI Report NSAC-202L-R2 guidelines for an effective program that predicts, detects, and monitors FAC in plant piping and other pressure retaining components. See Application, Appendix B, B.1.13 (at B-47). The GALL Report also indicates that the FAC program relies on the foregoing EPRI guidelines and that CHECKWORKS is acceptable because it provides a bounding analysis and that an inspection schedule based on the results of a predictive code like CHECKWORKS provides reasonable assurance that structural integrity will be maintained between inspections. See GALL Report at XI M-61 to XI M-62. Dr. Hopenfeld’s conclusory opinions do not provide a adequate basis to question the use of CHECKWORKS. Therefore, the contention does not raise a genuine dispute concerning the Application and should be rejected.

Contention 5: The license renewal application does not include an adequate plan to manage and monitor aging of the condenser, a key plant component necessary to mitigate the release of radioactive gases during an accident at the plant. [See Petition at 19]

As a basis for this contention, NEC claims that the Application does not address the actual condition of the condenser and erroneously claims that an aging management program for the condenser is not needed. Petition at 19-20 citing Application at Table 3.4.2-1 and page 3.4-26, plant-specific note 401. NEC relies on statements by Arnold Gundersen, a former reactor operator and nuclear licensee vice president, and documents produced in discovery during a Vermont Public Service Board proceeding indicating that the condenser is degraded by corrosion and stress cracking, for its position that the condenser “may be unreliable to mitigate the consequences of an accident at Vermont Yankee even at the present time.” See Petition at 20 & Exhibit 8, Declaration of Arnold Gundersen Supporting New England Coalition’s Petition for Leave to Intervene, Request for Hearing, and Contentions, dated May 26, 2006.⁸

Mr. Gundersen similarly asserts that the steam condenser is a well-worn component that will not likely withstand the stresses of the extended power uprate through 2012 or continued operation during the renewal period; the LRA fails to acknowledge the degraded condition of the condenser; large cracks have been identified and repaired stemming from bracing and weld deficiencies such that it will not prevent the flow of radioactive gases in the event it is needed to mitigate the consequences of an accident. Exhibit 8 at ¶¶ 9-34. Mr. Gundersen also asserts that summertime operation of VYNPS at extended uprate conditions will increase condenser backpressure and result in high-cycle fatigue of the condenser, and that none of the discovery documents in the State proceeding indicate that the condition has been analyzed or that Entergy will take compensatory measures to avoid backpressure. ¶ 30.

⁸ NEC, however, does not attach those documents to its Petition.

While NEC has identified a dispute with the Applicant concerning the appropriateness of note 401 with respect to the condenser's ability to perform a plateout function in the event of a MSIV leakage, NEC ignores the fact that the Application (at 3.4-2) also states that the Main Condenser and MSIV Leakage Pathway components will be under aging management programs to manage the effects of aging, (i.e., Flow-Accelerated Corrosion, System Walkdown, Water Chemistry Control - BWR, and Water Chemistry Control - Closed Cooling Water). Thus, it is not apparent that NEC has fulfilled its obligation to examine publicly available information.⁹ In addition, Mr. Gundersen's complaint that discovery documents in the State proceeding failed to show whether Entergy has properly addressed condenser integrity concerns (see Exhibit 8 at ¶¶20, 25, 30) does not indicate a dispute concerning an Application pending before the NRC. NEC does not explain why backpressure should be avoided or provide any basis for its position that a "corroded" condenser could not perform its plate out function. To the extent that Mr. Gundersen is concerned that degradation of the condenser is a safety issue for current operation of the facility, that the issue is outside the scope of the license renewal review, and thus inadmissible in this proceeding. See 10 C.F.R. § 54.30 (matters indicating lack of reasonable assurance during the current license term are not part of license renewal review).

Therefore, the contention either raises an issue that is outside of the scope of license renewal or lacks an adequately specific basis. Thus, the contention fails to raise a genuine dispute concerning a material issue and should be rejected.

Contention 6: The Application does not include an adequate plan to monitor and manage aging of the primary containment boundary adequate to assure the public health and safety for the twenty-year term of the proposed license [renewal], as required by 10 C.F.R. § 54.21(a)(3). [see Petition at 21]

⁹ See, e.g., *Millstone*, CLI-01-24, 54 NRC at 358 (petitioners must read pertinent portions of the application).

As a basis for this contention, NEC claims that the drywell is a component of the containment boundary that is subject to aging management review and relies on Entergy summary reports and the Application to conclude that the plan does not address “areas of the primary containment that are difficult to inspect, maintain and repair due to limited access” and that those areas may experience pitting and crevice corrosion which may “diminish” the capacity of the primary containment to perform its function. NEC specifically cites Application, Table 2.4-1 at page 2.4-13, which indicates that the drywell shell’s intended function is to serve as flood barrier, missile barrier, pressure boundary, shelter or protection, and support for Criterion (a)(1) equipment. See Petition at 21. NEC also quotes Entergy’s discussion at 3.5.2.2.1.4 of the Application, which concludes that significant corrosion of the drywell shell is not expected due to monitoring of cracks in the concrete under the Structures Monitoring Program, and the drywell steel shell and the moisture barrier where the drywell shell becomes embedded in the drywell concrete floor are inspected in accordance with the Containment In-service Inspection (IWE) Program and Structures Monitoring Program. See Petition at 21-22.

In addition, NEC asserts that (1) Entergy does not provide information that would exclude the presence of moisture at the sand cushion or concrete encasement interfaces with the drywell shell, resulting from leaks, spills or intermittent condensation, see *id.* at 22, (2) two summary reports indicate moisture and corrosion in these areas and the fact that there is a two-inch gap between the concrete and the drywell shell, see Petition at 22-24, and (3) the programs listed in 3.5.2.2.1 do not provide for inspecting below the sand cushion and the interstices between the shell and the concrete and that the program has been ineffective in managing corrosion, see *id.* at 25. NEC further notes that Staff guidance recognizes that corrosion is a concern for early BWR containments and that managing corrosion in difficult to inspect areas of the drywell is a valid technical issue that is being addressed at Oyster Creek.

See *id.* at 25-26 and Exhibit 9, “Proposed License Renewal Interim Staff Guidance LR-ISG-2006-01: Plant -Specific Aging Management Program for Inaccessible Areas of Boiling Water Reactor Mark I Steel Containment Drywell Shell,” dated May 3, 2006 [71 Fed. Reg. 27,010 (May 9, 2006)].

Contention 6 raises an issue within the scope of the proceeding, but does not raise a genuine dispute concerning the application. The two condition reports indicate the previous presence of corrosion. See Petition at 22-25. NEC apparently was not aware that a supplement to the Application provided additional information concerning the lower drywell and indicates that there is no discernible loss of drywell shell thickness. See Letter from Ted Sullivan, dated May 15, 2006 (ML061380079), Attachment 1 at 7. Thus, it has not met its burden to show a dispute with the Applicant. In addition, NEC cannot rely on Staff guidance concerning managing inaccessible areas of the drywell shell as a basis for a contention in this proceeding unless it can provide reasonably specific information that shows a genuine dispute regarding the existence of corrosion in the VYNPS drywell. The mere existence of a staff concern does not provide a basis for a contention. See *Duke Power Co. (Oconee Station, Units 1, 2&3)*, CLI-99-11, 49 NRC 328, 336-37 (1999) (issuance of requests for additional information does not provide a basis for a contention).

In summary, because Contentions 3-6 lack the necessary basis, support, and specificity or fail to state a genuine dispute on a material issue of law or fact within the scope of the proceeding, they are not admissible and should be rejected. The Staff does not oppose the admission of Contentions 1-2, provided they are limited to the adequately supported bases that are within the scope of this license renewal proceeding.

CONCLUSION

Because NEC has demonstrated standing to intervene, and at least one admissible contention, the NEC petition should be granted.

Respectfully submitted,

/RA/

Mitzi A. Young
Counsel for NRC Staff

Dated at Rockville, Maryland
this 22nd day of June 2006

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

CERTIFICATE OF SERVICE

I hereby certify that copies of the "NRC STAFF ANSWER TO REQUEST FOR HEARING OF NEW ENGLAND COALITION" in the above-captioned proceeding have been served on the following by electronic mail with copies by deposit in the NRC's internal mail system by electronic mail, with copies by U.S. mail, first class, as indicated by an asterisk, this 22nd day of June, 2006.

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