October 4, 2010

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
ENTERGY NUCLEAR OPERATIONS, INC.	)	Docket Nos. 50-247/286-LR
	)	
(Indian Point Nuclear Generating Units 2 and 3)	)	

NRC STAFF'S ANSWER TO STATE OF NEW YORK'S AND RIVERKEEPER'S MOTION FOR LEAVE TO FILE A NEW AND AMENDED CONTENTION CONCERNING THE AUGUST 9, 2010 ENTERGY REANALYSIS OF METAL FATIGUE (NEW YORK STATE 26-B/RIVERKEEPER TC-1B (METAL FATIGUE))

INTRODUCTION

Pursuant to 10 C.F.R. § 2.309(h)(1), and the Atomic Safety and Licensing Board's ("Board's") July 1, 2010 Scheduling Order[1] the staff of the U.S. Nuclear Regulatory Commission ("NRC Staff" or "Staff")) hereby files its answer to "State Of New York's And Riverkeeper's Motion For Leave To File A New And Amended Contention Concerning The August 9, 2010 Entergy Reanalysis Of Metal Fatigue" (Sept. 9, 2010) ("Motion") and the "new and amended contention" (Consolidated Contention NYS-26B/RK-TC1B), attached thereto.[2] As more fully set forth below, the Staff opposes New York's and Riverkeeper's proffered amended metal fatigue

[1] *Entergy Nuclear Operations, Inc.* (Indian Point Nuclear Generating Units 2 and 3), ASLBP No. 07-858-03-LR-BD01, (July 1, 2010) (unpublished order) ("Scheduling Order")

[2] See "Petitioners State Of New York And Riverkeeper, Inc. New And Amended Contention Concerning Metal Fatigue" (Sept. 9, 2010) ("Contention").

contention, because the proffered contention is not material to the license renewal application ("LRA") at issue in this proceeding, and does not state a genuine dispute of material fact. 10 C.F.R. §§ 2.309(f)(1)(iv) and (vi).

BACKGROUND

On April 23, 2007, Entergy Nuclear Operations, Inc. ("Entergy" or "Applicant") filed its application to renew the operating licenses for Indian Point Nuclear Generating Units 2 and 3 ("IP2" and "IP3"), for an additional period of 20 years. On November 30, 2007, petitions for leave to intervene were filed by various petitioners, including the State of New York ("State" or "New York")[3] and Riverkeeper, Inc. ("Riverkeeper").[4] Both the State and Riverkeeper filed contentions challenging the LRA's provisions for aging management related to metal fatigue, as set forth in New York Contention 26 and Riverkeeper Contention TC-1.[5] On January 22, 2008, Entergy submitted Amendment 2 to its LRA,[6] which directly affected Riverkeeper's and New York's aging management contentions. Riverkeeper subsequently filed its Amended Contention TC-1A on March 5, 2008, and New York filed its Supplemental Contention 26-A on April 7, 2008.

On July 31, 2008, the Board issued its ruling on standing and the admissibility of contentions, finding, *inter alia*, that New York State 26/26A and Riverkeeper TC-1/1A were

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[3] *See* "New York State Notice of Intention to Participate and Petition to Intervene," filed November 30, 2007 ("New York Petition").

[4] *See* "Riverkeeper, Inc.'s Request for Hearing and Petition to Intervene in the License Renewal Proceeding for the Indian Point Nuclear Power Plant," filed November 30, 2007 ("Riverkeeper Petition").

[5] *See* New York Contention 26 ("Entergy's [LRA] Does Not Include an Adequate Plan to Monitor and Manage the Effects of Aging Due to Metal Fatigue on Key Reactor Components"), New York Petition at 227-33; Riverkeeper Contention TC1 ("Inadequate Time Limited Aging Analyses and Failure to Demonstrate That Aging Will Be Managed Safely"), Riverkeeper Petition at 7-15.

[6] Entergy Letter NL-08-021, from Fred R. Dacimo, Vice President, Entergy, to NRC Docket Control Desk, dated January 22, 2008.

admissible as contentions of omission, since Entergy's LRA did not include fatigue evaluations using environmentally-assisted cumulative usage factor ("CUF_{en}") calculations, and a description of the specific corrective actions it will take to manage the aging effects of metal fatigue on key reactor components.[7] The Board directed Riverkeeper and New York to submit a consolidated contention,[8] which they did on August 21, 2008.[9]

In August 2010, Entergy (through its contractor, Westinghouse Electric Co., LLC.) completed its refined fatigue analyses to determine the CUF_{en} for relevant locations at the facility, and transmitted the results of its calculations to the Board and parties in this proceeding.[10] On August 25, 2010, Entergy filed a motion for summary disposition of the consolidated metal fatigue contentions,[11] on the grounds, *inter alia,* that (a) an applicant is not required to submit refined CUF_{en} calculations prior to issuance of a renewed license, as held in

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[7] LBP-08-13, 68 NRC at 138, 140, and 172.

[8] *Entergy Nuclear Operations, Inc.* (Indian Point, Units 2 and 3), LBP-08-13, 68 NRC 43, 131-140, 166-72, 218-19 (July 31, 2008).

[9] "Consolidated Contention of Petitioners State of New York (No. 26/26-A) and Riverkeeper, Inc. (TC-1/TC1-A) - Metal Fatigue and Designation of the State of New York as Lead Litigator for this Consolidated Contention" (Aug. 21, 2008).

[10] *See* Letter from Paul Bessette, Esq. to the Licensing Board, dated August 10, 2010, transmitting Entergy Letter NL-10-082, from Fred R. Dacimo, Vice President, Entergy, to NRC Docket Control Desk, "[LRA] – Completion of Commitment # 33 Regarding the Fatigue Monitoring Program, dated August 9, 2010.

[11] "Applicant's Motion for Summary Disposition of New York State Contentions 26/26A & Riverkeeper Technical Contentions 1/1A (Metal Fatigue of Reactor Components)" (Aug. 25, 2010). Accompanying Entergy's Motion were 16 attachments, including (1) a "Statement of Material Facts," dated August 25, 2010 ("Material Facts") and (2) the "Declaration of Nelson F. Azevedo in Support of Applicant's Motion for Summary Disposition of Contentions NYS-26/26A and Riverkeeper TC-1/1A," dated August 20, 2010 ("Azevedo Decl."). Entergy included its calculations in (proprietary) attachments to its motion. See Attachment 15, "Westinghouse Electric Co., WCAP-17199-P, Rev. 0, *Environmental Fatigue Evaluation for Indian Point Unit 2"* (June 2010), and Attachment 16 "Westinghouse Electric Co., WCAP-17200-P, Rev. 0, *Environmental Fatigue Evaluation for Indian Point Unit 3" (*June 2010).

the Commission's recent *Vermont Yankee* decision,[12] and (b) in any event, Entergy had completed those calculations and had shown that the refined CUF_{en} values were less than 1.0. Responses to Entergy's motion were filed by New York, Riverkeeper and the Staff on September 14, 2010.[13]

On September 9, 2010, based upon the information filed by Entergy in support of its motion for summary disposition, New York and Riverkeeper filed New York Contention 26-B/ Riverkeeper Contention TC-1B (Metal Fatigue), in which they assert that Entergy's new CUF_{en} analyses are flawed, unreliable, inadequate, and non-compliant. Petition at 7.

DISCUSSION

I. Legal Standards Governing the Admissibility of Contentions.

The legal requirements governing the admissibility of contentions are well established, and are currently set forth in 10 C.F.R. § 2.309. In brief, a contention must:

> (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

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[12] *Entergy Vermont Yankee, L.L.C*. (Vermont Yankee Nuclear Power Station), CLI-10-17, 72 NRC ___ (July 8, 2010).

[13] *See* New York/Riverkeeper's "Combined Response to Entergy's Motion for Summary Disposition of Combined Contentions NYS 26/26A and RK TC-1/TC-1A" (Sept. 14, 2010); "NRC Staff's Answer to Applicant's Motion for Summary Disposition of New York Contention 26/26A and Riverkeeper Contention TC-1/1A -- Metal Fatigue" (Sept. 14, 2010).

> which the requestor/petitioner intends to rely to support its position on the issue;
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> (vi) [P]rovide sufficient information to show that a genuine dispute exists with the applicant/licensee on a material issue of law or fact. This information must include references to specific portions of the application (including the applicant's environmental report and safety report) that the petitioner disputes and the supporting reasons for each dispute, or, if the petitioner believes that the application fails to contain information on a relevant matter as required by law, the identification of each failure and the supporting reasons for the petitioner's belief; . . . .

10 C.F.R. § 2.309(f)(1)(i) – (vi).[14] Further, the Commission has stated that "the focus of a hearing on a proposed licensing action is the adequacy of the application to support the licensing action, not the nature of the NRC Staff's review." *Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station), CLI-08-17, 68 NRC 231, 237 (2008), *citing Pa*'ina *Hawaii, LLC*, CLI-08-3, 67 NRC 151, 168 n.73 (2008).

The Commission has recently noted that when determining the proper focus of a contention, the "'NRC opinion has long referred back to the bases set forth in support of the contention.'" *Entergy Nuclear Generation Co. and Entergy Nuclear Operations, Inc.* (Pilgrim Nuclear Power Station), CLI-10-11, 71 NRC __, __ (March 26, 2010) (slip op. at 28) (*quoting Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-02-28, 56 NRC 373, 379 (2002) (Catawba/McGuire)). The reach of a contention hinges upon the contention's terms coupled with the stated bases. *Id.* The NRC's contention rules require reasonably-specific factual and legal claims "to assure that matters admitted for hearing have at least some minimal foundation, are material to the proceeding, and provide notice to opposing parties of the issues" they must defend. *Id.*

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[14] 10 C.F.R. § 2.309(f)(1)(vii) applies to a COL proceeding under 10 C.F.R. § 52.103(b), and is inapplicable to a license renewal proceeding.

The Board in this proceeding has previously addressed, in detail, the requirements for contentions. *See Indian Point*, LBP-08-13, 68 NRC at 60-64. As summarized by the Board, the Petitioners must provide a brief explanation of the basis of the contention. *Id.* at 61. Second, they must show that the issue is within the scope of the proceeding. *Id.* at 62. Third, they must show the materiality of the issue, *i.e.* "that the subject matter of the contention would impact the grant or denial of a pending license application." *Id.*[15] Fourth, they must provide a concise allegation of supporting facts or expert opinions. *Id.* at 62-64. Mere notice pleading is insufficient, as are bare assertions and speculation. *Id.* at 63. Fifth, the contention must show a genuine dispute with the license application, challenging a portion of the application or showing an omission from the application. *Id.* at 64. Sixth, the proffered contention must not challenge NRC rules or regulations. *Id.*

Finally, after the deadline for submission of initial contentions has passed, any further new or amended contentions must be timely submitted under 10 C.F.R. § 2.309(f)(2)(iii), or supported by a showing that the "good cause" and other factors specified in 10 C.F.R. § 2.309(c)(i)-(viii) support the admission of a non-timely contention. In this regard, the Board has provided that new contentions shall be deemed timely under 10 C.F.R.§ 2.309(f)(2)(iii) if filed "within thirty days of the date when the new and material information on which it is based first becomes available." *Entergy Nuclear Operations, Inc.* (Indian Point Nuclear Generating Units 2 and 3), "Scheduling Order" (July 1, 2010) (unpublished) at 6 ¶ F.2.[16]

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[15] With respect to materiality, the Commission has held that a contention must be based on a genuine material dispute, not the possibility that petitioners, if they perform their own additional analyses, may ultimately disagree with the application. *USEC, Inc*. (American Centrifuge Plant), CLI-06-10, 63 NRC 451, 480 (2006).

[16] Except to the extent specified in section III.G of this answer, the Staff does not object to the timeliness of the amended contention.

II. NRC Standards Regarding Metal Fatigue

A. Technical and Legal Background

The Commission recently issued a definitive ruling discussing, at length, the issue of metal fatigue. *Vermont Yankee*, CLI-10-17, 72 NRC __ (July 8, 2010) (slip op). As described by the Commission,

> Metal fatigue can be defined as the weakening of a metal due to mechanical and thermal stresses, which are variously referred to as load cycles, stress cycles, and cyclical loading. Metal components experience these stresses during "transients" such as significant temperature changes during plant startup and shutdown. An excessive number of load cycles or transients may result in a fracture or a significant reduction in the strength of a component. These fractures or significant reductions are called "fatigue failure." For any material, there is a characteristic number of stress cycles that it "can withstand at a particular applied stress level before fatigue failure occurs." The period during which this number of load cycles occurs for *all* types of stress is called the material's "fatigue life."

Id., slip op. at 15 (footnotes omitted).

The fatigue that a metal component experiences is quantified by the "Cumulative Usage Factor" or "Cumulative Use Factor" ("CUF") *Id.* at 3-4 n.9) (*citing AmerGen Energy Co., LLC* (Oyster Creek Nuclear Generating Station), CLI-08-28, 68 NRC 658, 663 (2008)). When the corrosive environment in a reactor is considered, it is reflected by an "Environmental Adjustment Factor" or "F_{en}" which is used to modify the CUF into a "Cumulative Use [or usage] Factor Environmentally Adjusted" or "CUF_{en}". *Id.*

If a given component has a CUF analyses which is part of the licensee's current licensing basis ("CLB") (*i.e.* the licensing basis that exists before the grant of a renewed license (*see*

10 C.F.R. § 54.3(a)), the CUF analyses are treated as time-limited aging analyses ("TLAA").[17] *See Vermont Yankee*, CLI-10-17, slip op. at 20. Pursuant to 10 C.F.R. § 54.21(c)(1)(i)-(iii), an applicant may address, for license renewal purposes, an existing TLAA by (1) showing that the analyses remain valid for the period of extended operation ("PEO"), (2) projecting (reanalyzing) the TLAA to address the PEO, or (3) demonstrating that the effects of aging will be adequately managed during the PEO. *Id.* at 19-21.

As the Commission observed, the Staff's standard review plan for license renewal[18] recognizes that a license renewal applicant may address metal fatigue by showing that the number of assumed transients in its existing CUF TLAA will not be exceeded during the PEO, such that its existing analyses are valid for 60 years, under 10 C.F.R. § 54.21(c)(1)(i), or by reevaluating the CUF based on a larger number of assumed transients and showing that the CUF remains valid through the PEO, under § 54.21(c)(1)(ii) *Id.* at 20-21.

Further, the Commission observed that in lieu of either using the existing CUF TLAA or projecting the CUF TLAA through the PEO, an applicant may manage metal fatigue by using an

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[17] *Time-limited aging analyses*, for the purposes 10 C.F.R. part 54 "Requirements For Renewal of Operating Licenses for Nuclear Power Plants," are those licensee calculations and analyses that:

> (1) Involve systems, structures, and components within the scope of license renewal, as delineated in § 54.4(a);
> (2) Consider the effects of aging;
> (3) Involve time-limited assumptions defined by the current operating term, for example, 40 years;
> (4) Were determined to be relevant by the licensee in making a safety determination;
> (5) Involve conclusions or provide the basis for conclusions related to the capability of the system, structure, and component to perform its intended functions, as delineated in § 54.4(b); and
> (6) Are contained or incorporated by reference in the CLB.

10 C.F.R. 54.3(a)

[18] "Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants," NUREG-1800, Rev. 1 (Sept. 2005) ("SRP").

aging management program ("AMP")[19] under 10 C.F.R. § 54.21(c)(1)(iii) *Id.* at 21-22. One acceptable way of demonstrating that a licensee can adequately manage the effects of aging for the period of extended operation is to reference in the LRA the Metal Fatigue AMP that is approved in the GALL Report. *Id.* at 22. Where a CUF_{en} is not part of the plant's *current* licensing basis, the CUF_{en} is not a TLAA. *See id.* at 41. In that situation, the CUF_{en} cannot be a TLAA, and thereby is not a prerequisite to license renewal. *Id.* The Staff's consideration or treatment of a CUF_{en} during its review of an LRA does not render the CUF_{en} into a TLAA. *Id.*

Finally, the Commission observed that NRC regulations contain no requirement that an applicant complete its AMP (including its CUF_{en} analyses) prior to the issuance of a renewed license. *Id.* at 43. Rather, an applicant is only required to complete such an analysis prior to license renewal if "the analysis is needed to support a demonstration that the tracking AMP will satisfy [NRC] regulatory requirements," for example, to demonstrate that a proposed "AMP is consistent with the GALL Report." *Id.*

In *Vermont Yankee*, the Commission observed that the GALL Report describes ***three*** ways that a license renewal applicant proposing to use an AMP may comply with 10 C.F.R. § 54.21(c)(1)(iii): Repair of the component, replacement of the component, and conducting more rigorous analyses. *Id.* at 12 & n.46; *see also id.* at 24 n.101. Further, the Commission viewed the licensee's fatigue calculations as corrective actions in the form of a more rigorous analysis used to demonstrate that the design code limits will not be exceeded during the PEO pursuant to the GALL report, § X.M1 at pp. X M-1 to X M-2. *Id.* at 53 n.236. The Commission discussed the regulatory framework of 10 C.F.R. § 54.21(c)(1) and how it applied to metal

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[19] Entergy has committed to implement an AMP (the "Fatigue Monitoring Program") during the period of extended operation. LRA Amendment 2 at 15.

fatigue "predictive" TLAAs and "tracking" AMPs; and noted that periodic updates of the fatigue usage calculations may be performed to satisfy 10 C.F.R. §54.21(c)(1), but such updates are not necessarily required prior to issuance of a renewed license. *Id.*

B Regulatory Guidance for the Evaluation of Metal Fatigue

The Commission has observed that the analyses performed (by LRA applicants) for AMPs may be similar to the analyses of verified or projected TLAAs, but the purposes of the analyses under an AMP differ from the purposes of analyses submitted to satisfy TLAA requirements. *Vermont Yankee*, CLI-10-17, slip op. at 42. Correspondingly, the purpose and type of review performed by the Staff of an AMP is not the same as the Staff's review of a re-analysis of an existing TLAA. Compare SRP §§ 4.3.3.1.2.1, 4.3.3.1.2.2, with SRP § 4.3.3.1.2.3 (describing the Staff's review for an ANSI B31.1 plant's submissions of TLAAs, TLAA re-analysis, and AMPs under 10 C.F.R. § 54.21(c)(1)(i), (ii), and (iii) respectively).

When an applicant submits an AMP pursuant to 54.21(c)(1)(iii), the Staff reviews the adequacy of the AMP. If a renewed license is granted, the AMP becomes part of the plant's licensing basis, and will be subject to inspection during the PEO. *See e.g.* 10 C.F.R. § 50.70(a) (requiring holders of licenses to permit inspections). Consistent with NRC regulations in 10 C.F.R. § 54.21(c)(1)(iii), however, the Staff's re-licensing review of an AMP does not include a review of analyses performed as part of the proffered AMP. *See Vermont Yankee*, CLI-10-17, slip op. at 44-45. Rather, where an applicant elects to comply with § 54.21(c)(1)(iii) and commits to implement an AMP that is consistent with the GALL Report, the Staff determines whether the AMP is indeed consistent with the GALL Report – a practice which the Commission has approved. *Vermont Yankee*, CLI-10-17, slip op. at 21-22, 45-46. In considering the adequacy of such an AMP, the Staff's findings are based upon a comparison of

the AMP to the GALL Report,[20] and thus the material issue for consideration is how an AMP compares or contrasts with the GALL Report. *See* SRP § 4.3.3.1.1.3. Further, the results of the *execution and performance* of the AMP (*e.g.* re-analyses, field-replacements, repairs) go beyond the scope of the staff's license renewal review of the proposed AMP.

In sum, the Applicant's recently submitted CUF_{en} calculations are not part of the CLB, and were not submitted as part of a TLAA under 10 C.F.R. § 54.21(c)(1)(i) or (ii); rather, the Applicant performed the calculations as part of its AMP, in accordance with 10 C.F.R. § 54.21(c)(1)(iii). The recent CUF_{en} analyses, in effect, constitute "corrective actions" under the metal fatigue AMP, consistent with § X.M1 of the GALL Report. *Cf. Vermont Yankee*, CLI-10-17, slip op. at 53 n.236.

III. Contention NYS 26-B/Riverkeeper TC-1B Is Inadmissible.

New York and Riverkeeper's newly-proffered contention states:

> Entergy's license renewal application does not include an adequate plan to monitor and manage the effects of aging due to metal fatigue on key reactor components in violation of 10 C.F.R. § 54.21(c)(1)(iii).

Petition at 1; capitalization omitted. In general, the proffered contention and its supporting bases claim that the Metal Fatigue AMP is inadequate because the CUF_{en} analyses performed on behalf of the Applicant in WCAP-17199-P, Revision 0, "*Environmental Fatigue Evaluation for Indian Point Unit 2* (June 2010)," and WCAP-17200-P, Revision 0, "*Environmental Fatigue Evaluation for Indian Point Unit 3 (*June 2010)," are subject to a number of errors in the assumptions and inputs used, yet Entergy has not documented how it dealt with potential errors.

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[20] The Commission has stated that a licensee's use of an AMP identified in the GALL Report affords reasonable assurance that it will manage the effects of aging during the PEO. *Vermont Yankee*, CLI-10-17, slip op. at 21 n.85 (*citing Oyster Creek*, CLI-08-23, 68 NRC at 468).

See, e.g., Petition at 8-9; Motion at 2 n.2 (alleging missing propagation of errors analysis). The Petitioners describe their dispute as including questions as to whether the CUF_{en} calculations are reliable, whether the CUF_{en} calculations meet the GALL Report, and whether the AMP provides sufficient detail to meet the GALL Report. Motion at 6. Further, Petitioners take issue with the scope of components addressed in the calculations, and the details of the plans to manage aging during the period of extended operations. *Id.* The arguments in the Motion are fleshed out in the Petition, based on the views of the Petitioners' two experts, Drs. Lahey and Hopenfeld. As set forth below, the Petitioners' new contention should be rejected, in that it does not satisfy the requirements of 10 C.F.R. §§ 2.309(f)(1)(iv) (materiality) and (vi) (genuine dispute of material fact).

A. The Indian Point LRA Is Not Required To Contain Completed CUF_{en} Analyses.

The petition incorrectly states that Entergy must include CUF_{en} analyses as part of its LRA. Petition at 7. The petition incorrectly considers the environmentally-adjusted CUF_{en} to be TLAAs based upon the April 2007 (LRA. *See* Petition at 6 ¶ 11. Significantly, the Petitioners' claim is barred by the Commission's July 2010 ruling in *Vermont Yankee*, that as a legal matter, CUF_{en} analyses or calculations that are not contained in a plant's current licensing basis cannot be TLAAs and cannot be a prerequisite to license renewal. *Vermont Yankee*, CLI-10-17, slip op. at 41.[21]

[21] Further, the Commission observed that even though the Staff reviewed the Vermont Yankee CUF_{en} calculations, such consideration of the CUF_{en} values or analyses during the Staff's review of an LRA does not create a requirement that CUF_{en} analyses be submitted as part of a LRA. *Vermont Yankee*, slip op. at 41. In contrast to the situation in Vermont Yankee, the Indian Point CUF_{en} analyses were not considered by the Staff in its review of the Indian Point LRA (which was completed prior to the Applicant's August 2010 submittal of its CUF_{en} reanalyses).. *See* NUREG-1930, Safety Evaluation Report Related to the License Renewal of Indian Point Nuclear Generating Units Nos. 2 and 3 (Nov. 2009), § 4.3.3.

Here, the CUF_{en} calculations are not part of the Indian Point Unit 2 and 3 current licensing basis. Accordingly, under *Vermont Yankee*, the CUF_{en} calculations at Indian Point are not TLAAs and, as a matter of law, are not prerequisites to license renewal. *See Vermont Yankee*, CLI-10-17, slip op. at 48.

In accordance with the Commission's regulations governing the admissibility of contentions, a contention must show that a genuine dispute exists with respect to errors in or omissions from the application. 10 C.F.R. § 2.309(f)(1)(vi). As this Board has previously held, a contention that "mistakenly asserts that an application does not address a relevant issue, may be dismissed." *Indian Point*, LBP-08-13, 68 NRC at 64. Because Contention NYS-26B/TC-1B is based upon the mistaken view that the CUF_{en} calculations are TLAAs, contrary to the Commission's decision in CLI-10-17, the contention is inadmissible.[22]

B. An "Error Analysis" Is Not Required to Be Submitted With the CUFen Analysis.

The Petitioners state that the Applicant's CUF_{en} calculations are deficient because no error analysis or "propagation of errors" was provided. Petition at 8-10, 12. In this regard, they assert that errors in assumptions and analyses could cause the errors in the analyses, and that the "propagation of error" analysis will determine the "margins of error" created by each assumption. *Id.* at 8 In their view, without the error analysis, the Petitioners, the Board, and the Staff cannot confirm that uncertainties in the analysis have been considered. *Id.* at 9.

The Petitioners' assertions do not state a material issue. To support this contention of omission, the Petitioners are required by 10 C.F.R. § 2.309(f)(1)(vi) to show that the application fails to contain information on a relevant matter as required by law, and to identify each failure

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[22] *Cf. Vermont Yankee*, CLI-10-17, slip op. at 27 n.114 ("NEC appears also to have been under the misimpression that CUFens were a kind of TLAA").

and the supporting reasons for the petitioner's belief. Petitioners have not provided any showing that, as a matter of law, the "propagation of error" analysis is required.

Because the Commission has determined that the CUF_{en} analyses submitted as part of an AMP are not prerequisites to license renewal, any associated error analysis concerning those CUF_{en} analyses is also not a prerequisite to license renewal, and is not required by law. *See Vermont Yankee*, CLI-10-17, slip op. at 41. To be admissible, a contention of omission must demonstrate a dispute with the application by showing that the LRA fails to contain required information. *See Indian Point*, LBP-08-13, 68 NRC at 64. Because the CUF_{en} analysis is not required, this aspect of the contention is inadmissible as a matter of law. 10 C.F.R. 2.309(f)(1)(vi).

Second, even if the Petitioners were correct in asserting that an error analysis is required for license renewal, they have not demonstrated any error in the Applicant's calculations that would mandate the submission of such an analysis. In this respect, although the Petitioners have had access to the formulae used in the two proprietary Westinghouse analyses, Petitioners do not allege any specific error in those formulae, equations, and assumptions. Similarly, they do not attempt to re-write any of the equations by introducing uncertainties into the variables and carrying those uncertainties forward to the final CUF_{en}s. In other words, the Petitioners do not attempt to demonstrate how any specific alleged error would, or would not, affect the CUF_{en} results. Instead, the Petitioners speculate with the truism that some unspecified error could affect the final results. Such an assertion fails to warrant admission of the contention, because speculation, even by an expert, is insufficient to support a contention. *See Indian Point*, LBP-08-13, 68 NRC at 63.

C. The LRA Contains Sufficient Detail, under *Vermont Yankee.*

The Petitioners allege that Entergy's description of proposed corrective actions in the LRA, as amended, are too vague. Petition at 6-7. This *ipse dixit* assertion should be rejected.

The Applicant has committed to implement an AMP that the Staff has found is consistent with the GALL Report. *See* SER § 4.3.3.2 at 4-43. In *Vermont Yankee*, the Commission reiterated that a commitment to implement an AMP that the NRC finds is consistent with the GALL Report constitutes one acceptable method for compliance with 10 C.F.R. § 54.21(c)(1)(iii). *Vermont Yankee*, CLI-10-17, at 44. The Commission rejected an argument that a commitment to implement an AMP that is consistent with the GALL Report lacked sufficient detail to demonstrate that an AMP will be adequate. *Id.* at 46. The same result applies here.

A contention must be based on a genuine dispute with an application, and, where an omission of relevant information is alleged, the omission must of legally-required information. *See Indian Point*, LBP-08-13, 68 NRC at 64; 10 C.F.R. 2.309(f)(1)(vi). The Commission has found the commitment to implement an AMP consistent with the GALL Report to be sufficient (*Vermont Yankee*, CLI-10-17, slip op. at 44), and the Petitioners make no argument to show that details in the LRA are vague when compared to GALL Report. Thus, this claim is inadmissible. 10 C.F.R. § 2.209(f)(1)(vi).

D. Petitioners Do Not Show Inadequate Scope of the CUF_{en} Reanalysis

The Petitioners allege that, under the GALL Report at X M-2 and MRP-47, Rev. 1, Electric Power Research Institute ("EPRI"), *Materials Reliability Program: Guidelines for Addressing Fatigue Environmental Effects in a License Renewal Application,* at 3-4 (2005) ("MRP-47"), Entergy was required to expand the scope of its CUF_{en} analyses based upon the results of its previous analyses. Petition at 8, 9, 12, and 17-18.

This is a claim of omission, for which the Petitioners are required to show that the missing information (*i.e.,* more analysis) is required by law. *See* 10 C.F.R. § 2.209(f)(1)(vi). The Petitioners' claim disregards the fact that actions taken in response to CUF_{en} analyses are not prerequisites to license renewal. *See Vermont Yankee*, CLI-10-17, slip op. at 41. Because the CUF_{en} analysis is not required prior to license renewal, neither is the expanded information

which they allege should have been included in the CUF_{en} analysis; thus this aspect of the contention is inadmissible as a matter of law. 10 C.F.R. 2.309(f)(1)(vi); *Indian Point*, LBP-08-13, 68 NRC at 64.

Second, even if the Petitioners were correct in asserting that the scope of the Applicant's calculations must be expanded under the GALL Report, the Petitioners misapply the facts to the GALL Report and EPRI guidance document. Entergy's recent CUF_{en} analysis concludes that the CUF_{en}s remain within allowable limits during the PEO. In MRP-47, EPRI's recommendation was to expand the scope in a situation where the allowable limits are not met when environmental effects are considered. *See* Petition at 4-5 (quoting MRP-47). But here, this situation does not exist, nor have the Petitioners shown that any of the newly-calculated CUF_{en} values exceed 1.0.[23]

E. There is No Requirement for Advance Repair When A CUF_{en} Approaches 1.0.

The Petitioners assert that Entergy has not committed to repair or replace components when the CUF_{en} approaches unity. Petition at 10-11. The Petitioners, however, cite no regulations to support this concern, and they do not specify any particular CUF_{en} which they contend Entergy is required to specify for advance repair. *See id.*

There is no basis for Petitioners' claim that advance repair of components is required when a CUF_{en} approaches 1.0. As a threshold matter, Petitioners do not address the fact that, in accordance with *Vermont Yankee*, Entergy may elect to perform additional analyses and further refine the CUF_{en} rather than perform repairs, rendering any current concern over repair

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[23] Apart from the lack of legal support in Petitioners' argument, it appears that Entergy did in fact expand the scope of its review. The Petitioners acknowledge that "for the first time, limiting fatigue analysis results were given for components whose CUFen results were not discussed in the initial license renewal application filing." Petition at 10. The Petitioners make no attempt to reconcile their acknowledgement of the new analyses with their repeated claim that the scope must be expanded.

or replacement moot. *See Vermont Yankee*, CLI-10-17, slip op. at 12 & n.46; *See* also *id.* at 24 n.101.

Second, the Board in this proceeding has already ruled that there is nothing in the regulations that requires Entergy to implement action at any specific time, as aging can be adequately managed by taking corrective action "when it is needed, as indicated by CUF values approaching 1.0." *Indian Point*, LBP-08-13, 68 NRC at 140. The Board found this to be consistent with 10 C.F.R. § 54.21(c)(1). Nothing in the recent *Vermont Yankee* decision suggests any requirement for early repair. *See generally, Vermont Yankee*, CLI-10-17, slip op. at 43. Thus, this aspect of the contention lacks any meaningful support, and is inadmissible. *Indian Point*, LBP-08-13, 68 NRC at 63 (bare assertions are insufficient).

F. There is No Support for the Claim that Certain Bounding Values Must Be Used.

The Petitioners assert that Entergy needed to account for uncertainties by applying bounding F_{en} values of 12 and 17 for stainless steel and carbon, respectively, in accordance with NUREG/CR-6909.[24] Petition at 11. This claim lacks support.

As a threshold matter, because the Commission has determined that the CUF_{en} analyses are not prerequisites to license renewal, then logically any decision to use (or not to use) specific bounding values cannot be required in advance of license renewal. *See Vermont Yankee*, CLI-10-17, slip op. at 41. Because the CUF_{en} analysis is not required, this dispute regarding the use of two specific bounding F_{en} factors is inadmissible as a matter of law. 10 C.F.R. 2.309(f)(1)(vi); *Indian Point*, LBP-08-13, 68 NRC at 64.

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[24] NUREG/CR-6909, ANL-06/08, “Effect of LWR Coolant Environments on the Fatigue of Reactor Materials, Final Report” (Feb. 2007).

Second, apart from the legal bars to the Petitioners' argument, it is unclear where in NUREG/CR-6909 the Petitioners found their bounding values. Neither the Petition, nor Petitioners' expert (Dr. Hopenfeld) pinpoints the sources of the two alleged bounding F_{en} values. *See* Hopenfeld Declaration at 2-3 ¶ 10 ("In consideration of relevant uncertainties, NUREG/CR-6909 specifies appropriate bounding F_{en} values of 12 and 17 for stainless steel and carbon, respectively").[25] The Board (and parties) should not be required to sift unaided through various documents to piece together and discern the basis for Intervenors' arguments and concern. *See Entergy Nuclear Generation Co. and Entergy Nuclear Operations, Inc.* (Pilgrim Nuclear Power Station), CLI-09-11, 69 NRC 529. 534 (2009) (*citing Hydro Resources, Inc.* (P.O. Box 15910, Rio Rancho, NM 87174), CLI-01-4, 53 NRC 31, 46 (2001)).

In sum, this aspect of the contention lacks the requisite specificity to form a dispute with the application, and is inadmissible. 10 C.F.R. 2.309(1)(f)(vi).

G. Portions of the Contention are Beyond the Scope of Metal Fatigue.

The Petitioners state that Entergy did not evaluate highly-fatigued and highly-irradiated and embrittled structures, internal and external to the reactor pressure vessel, including bolts. Petition at 9-10 and 12. These claims are beyond the scope of a metal fatigue AMP, which concerns design and fatigue of the reactor coolant system boundary and selected reactor coolant system components. *See* GALL Report § at X.M.1 (describing an acceptable AMP). The GALL Report provides separate guidance and programs to manage the aging effects of

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[25] Regarding carbon steel, NUREG/CR-6909 gives no bounding value; rather, it states that "[l]aboratory data indicate that under certain reactor operating conditions, fatigue lives of carbon and low–alloy steels can be a factor of 17 lower in the coolant environment than in air." NUREG/CR-6909 at 3. The Petitioners have not provided any reason to believe that these conditions apply at Indian Point, such that a bounding F_{en} value of 17 should be utilized for carbon steel. The Staff has been unable to locate in NUREG/CR-6909 the source of Petitioner's claim that Indian Point must utilize a bounding F_{en} value of 12 for stainless steel.

concern in this portion of the contention. *See e.g.* GALL Report at § at XI.M18 ("Bolting Integrity").

Moreover, New York has filed a separate contention on this same issue, which is now pending before the Board.[26] The Petitioners have not shown any linkage or connection between their concern over vessel internals and the new CUF_{en} analyses. Further, they have not shown how their concern over vessel internals is based upon the new CUF_{en} information. Accordingly, these claims are impermissibly late, and should be denied as untimely, if for no other reason. *See* 10 C.F.R. § 2.309(f)(2); Scheduling Order at 6. In sum, the proffered bases regarding vessel internals and embrittlement do not support the admission of the Petitioners' proffered metal fatigue contention, and these contention bases should be rejected. *See Indian Point*, LBP-08-13, 68 NRC at 61 (the bases define the scope of the contention).

H. Details on Variables Are Not Material.

Finally, the Petitioners assert a number of technical concerns about Entergy's CUF_{en} reanalyses – none of which are material to a license renewal decision. For example, they assert that Entergy was required to specify the dissolved oxygen (DO) concentrations during transients, and speculate that using appropriate DO concentrations would likely result in some CUF_{en} exceeding unity. Petition at 11. Similarly, the Petitioners state that the calculations failed to specify the heat transfer coefficients used, and that such information is needed to validate the CUF_{en} analyses, that the methodology used by Entergy is deficient because the thermal-hydraulic analysis is not documented, and that Entergy failed to specify how it determined the number of transients. *Id.* at 12.

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[26] *See* "State of New York's Motion for Leave to File Additional Bases for Previously-Admitted Contention NYS-25 in response to Entergy's July 14, 2010 Proposed Aging Management Program for Reactor Pressure Vessels and Internal Components" (Sept. 15, 2010).

The Petitioners' assertions should be rejected, as a matter of law, in that they do not state a material, litigable issue for license renewal. Thus, because the Commission has determined that the CUF_{en} analyses included as part of an AMP are not prerequisites to license renewal, the details on any variable used in the analyses likewise is not needed. This aspect of the contention is therefore inadmissible. *See Vermont Yankee*, CLI-10-17, slip op. at 41; 10 C.F.R. 2.309(f)(1)(vi).

Further, the Petitioners' stated concern about the variables used, DO, heat transfer, and transients, is essentially equivalent to unsupported speculation that the calculations might be wrong.[27] The Petitioners rely on mere speculation to support these claims – and speculation, even by an expert, is insufficient to support a contention. *See* Indian Point, LBP-08-13, 68 NRC at 63; *cf. USEC, Inc*., CLI-06-10, 63 NRC at 480 (2006) (the possibility that petitioners' analyses may differ from the applicant's analyses does not create a genuine material dispute needed to support a contention). These claims should therefore be rejected.

CONCLUSION

The Petitioners' new and amended metal fatigue contention does not raise any issue that is material to license renewal. In accordance with the Commission's decision in *Vermont Yankee*, the details and adequacy of the Applicant's CUF_{en} calculations, performed as part of its Fatigue Monitoring Program AMP, are not required to be evaluated in advance of a license renewal decision. *See Vermont Yankee*, CLI-10-17, slip op. at 55-56. Accordingly, New York

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[27] For example, regarding transients, although the CUF_{en} re-analyses discuss and cite to previous reports concerning methods used for transient development, Petitioners' expert (Dr. Lahey) does not specify any particular error, but generally speculates that if an error had been made, that could change the results. *See e.g.* Proprietary Lahey Declaration at 11 ¶ 11(i). The Petitioners fail to dispute any specific part of the Entergy's transient analysis. *See, e.g.,* Petition at 12.

Contention 26-B/Riverkeeper Contention TC-1B should be dismissed as a matter of law, pursuant to 10 C.F.R. §§ 2.309(f)(1)(iv) and (vi).

Respectfully submitted,

David E. Roth
Counsel for NRC Staff

CERTIFICATION

I certify that NRC Staff Counsel has made a sincere effort to make himself available to listen and respond to the moving party, and to resolve the factual and legal issues raised in the motion, and that Counsel's efforts to resolve the issues have been unsuccessful.

David E. Roth
Counsel for NRC Staff

Dated at Rockville, Maryland
this 4th day of October 2010

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
ENTERGY NUCLEAR OPERATIONS, INC.	)	Docket Nos. 50-247/286-LR
	)	
(Indian Point Nuclear Generating Units 2 and 3)	)	

CERTIFICATE OF SERVICE

I hereby certify that copies of the "NRC STAFF'S ANSWER TO STATE OF NEW YORK'S AND RIVERKEEPER'S MOTION FOR LEAVE TO FILE A NEW AND AMENDED CONTENTION CONCERNING THE AUGUST 9, 2010 ENTERGY REANALYSIS OF METAL FATIGUE (NEW YORK STATE 26-B/RIVERKEEPER TC-1B (METAL FATIGUE))" have been served upon the following through deposit in the NRC's internal mail system, with copies by electronic mail, or, as indicated by an asterisk, by deposit in the U.S. Postal Service, with copies by electronic mail this 4th day of October, 2010:

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