

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-LR/286-LR  
 )  
(Indian Point Nuclear Generating )  
Units 2 and 3) )

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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

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September 14, 2010

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INTRODUCTION

Pursuant to 10 C.F.R. § 2.1205, the NRC Staff ("Staff") hereby files its answer to "Applicant's Motion for Summary Disposition of New York State Contentions 26/26A & Riverkeeper Technical Contentions 1/1A (Metal Fatigue of Reactor Components)" ("Motion"), filed by Entergy Nuclear Operations, Inc. ("Applicant" or "Entergy") on August 25, 2010.<sup>1</sup> For the reasons set forth below and in the attached "Affidavit of On H. Yee and Kimberly J. Green" ("Staff Affidavit"),<sup>2</sup> the Staff has determined that it agrees with each of the statements contained

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<sup>1</sup> 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."). Two of the attachments to Entergy's motion contained proprietary information: Attachment 15, "Westinghouse Electric Co., WCAP-17199-P, Revision 0, *Environmental Fatigue Evaluation for Indian Point Unit 2* (June 2010)," and Attachment 16 "Westinghouse Electric Co., WCAP-17200-P, Revision 0, *Environmental Fatigue Evaluation for Indian Point Unit 3* (June 2010)" which Entergy filed subject to the Nondisclosure Agreement and Protective Order issued by the board on September 4, 2009.

<sup>2</sup> As set forth in the attached Staff Affidavit, at ¶¶ 1-2 and 5-6, and the attached Statements of Professional Qualifications of On H. Yee, and Kimberly J. Green, Mr. Yee is a Mechanical Engineer in the (continued. . .)

in the Statement of Material Facts submitted in support of Entergy's Motion, and that the views expressed by Entergy are consistent with the Staff's established regulatory positions regarding the treatment of metal fatigue under 10 C.F.R. Part 54. Accordingly, the Staff submits that Entergy's Motion demonstrates there is no genuine dispute of material facts with respect to New York State ("New York" or "NYS") Contention 26/26A and Riverkeeper, Inc. ("RK") Contention TC-1/TC-1A. Thus, Entergy is entitled to a decision in its favor as a matter of law, and Contentions NYS 26/26A and RK TC-1/TC-1A, as consolidated, should now be dismissed.

#### BACKGROUND

As summarized by the Board in its decision admitting these contentions, NYS-26A and RK TC-1/1A asserted:

The [license renewal application ("LRA")] does not include an adequate [aging management program ("AMP")] to manage the effects of aging due to metal fatigue on key reactor components, specifically relating to the calculation of the [cumulative usage factors ("CUFs")] and the resulting AMP for components with CUFs greater than 1.0.

*Entergy Nuclear Operations, Inc.* (Indian Point, Units 2 and 3), LBP-08-13, 68 NRC 43, 218-19 (2008). Upon admitting these contentions, the Board directed that New York and Riverkeeper consolidate the contentions. *Id.* at 219-20. In accordance with the Board's Order, on August 21, 2008, New York and Riverkeeper filed their Consolidated Contention<sup>3</sup>, which listed

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(. . .continued)

Aging Management of Reactor Systems and Guidance Update Branch, Division of License Renewal, and has performed numerous technical reviews for license renewal in the area of metal fatigue; Ms. Green is a Senior Project Manager in the Projects Branch 2, Division of License Renewal; she coordinated the Staff's review of safety issues associated with the Indian Point license renewal application, and has reviewed and audited many license renewal applications.

<sup>3</sup> "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" (August 21, 2008) ("Consolidated Filing"). The Board has not ruled on the acceptability of the Consolidated Contention.

five specific issues related to metal fatigue:

Entergy's LRA and LRA Amendment 2 fail to include adequate time limited aging analyses (TLAAs) of reactor components for metal fatigue required by 10 C.F.R. § 54.21 (c)(1)(i) and (ii), and fail to include an adequate plan to monitor and manage the effects of aging due to metal fatigue on key reactor components that are subject to an aging management review required by 10 C.F.R. §§ 54.21(a)(3) and 54.21(c)(1)(iii).

Specifically, Entergy has failed to satisfy the requirements of section 54.21(c)(1) in several ways:

- NRC regulations require adequate and thorough TLAAs now - as part of the license renewal application review process and those TLAAs cannot be deferred until after a renewal license is granted;
- Entergy's TLAAs for a number of components subject to the license renewal regulations listed in Tables 4.3-3 through 4.3-12 are incomplete because they omit consideration through the application of "Fen factors" of the exacerbating effects of environmental conditions on the fatigue of metal components, contrary to NRC regulations and guidance;
- Entergy has inappropriately limited the number of reactor components that must undergo a TLAA, by both failing to broaden its TLAA analysis beyond the universe of the representative components identified in Tables 4.3-13 and 4.3-14 of its original LRA, and by eliminating, in its LRA Amendment 2, its commitment to evaluate cumulative use factors (CUFs) for locations specified in NUREG/CR-6260;
- Entergy's promised and future "refinement" in LRA Amendment 2 of the CUF analysis for some key reactor components does not and cannot constitute a valid corrective action under NRC regulations; and
- the correlation between Entergy's future "refinement" of the CUF analysis and its commitment to repair and replace key components as part of its "Fatigue Monitoring Plan" is unacceptably vague, in violation of 10 C.F.R. § 54.21(c)(1)(iii).

Consolidated Filing at 3-4. On August 25, 2010, Entergy filed its motion for summary disposition of these contentions.<sup>4</sup>

### DISCUSSION

#### I. Legal Standards Governing Motions for Summary Disposition

Pursuant to 10 C.F.R. § 2.1205(a), motions for summary disposition must be in writing, must include a written explanation of the basis for the motion, and must include affidavits to support statements of fact. In ruling on a motion for summary disposition, the presiding officer is to apply the standards for summary disposition set forth in 10 C.F.R. § 2.710. See 10 C.F.R. § 2.1205(c). A moving party is entitled to summary disposition of a contention if the filings in the proceeding, together with the statements of the parties and the affidavits, demonstrate that there is no genuine issue as to any material fact and that it is entitled to a decision in its favor as matter of law. See 10 C.F.R. §§ 2.1205 and 2.710(d)(2); see also *Advanced Medical Sys., Inc.* (One Factory Row, Geneva, Ohio), CLI-93-22, 38 NRC 98, 102-03 (1993); *Exelon Generation Co., LLC* (Early Site Permit for Clinton ESP Site), LBP-05-19, 62 NRC 134, 179-80 (2005).

A party seeking summary disposition bears the burden of demonstrating that no genuine issue of material fact exists. See *Sequoyah Fuels Corp. & General Atomics Corp.* (Gore, Okla. Site Decontamination and Decommissioning Funding), LBP-94-17, 39 NRC 359, 361 (1994). The evidence submitted must be construed in favor of the non-moving party. *Id.* Affidavits submitted in support of a summary disposition motion must be executed by individuals qualified

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<sup>4</sup> On September 9, 2010, New York and Riverkeeper filed a "new and amended contention" labeled NYS 26-B/Riverkeeper TC-1B, challenging Entergy's CUFen calculations. See "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," dated September 9, 2010. Although New York and Riverkeeper explicitly recognize that Entergy's "new [CUFen] analysis does not merely modify a few parts of the prior analysis but is, rather, a replacement of that prior analysis" (*Id.* at 1), they fail to advise the Board how Entergy's new analysis affects their previously admitted contentions; rather, they simply seek to add to those contentions and leave them in place. "Petitioners State of New York and Riverkeeper, Inc. New and Amended Contention Concerning Metal Fatigue," dated September 9, 2010, at 1.

by "knowledge, skill, experience, training, or education," and must be sufficiently grounded in facts. *Duke Cogema Stone & Webster* (Savannah River Mixed Oxide Fuel Fabrication Facility), LBP-05-04, 61 NRC 71, 80-81 (2005) (citing Fed. Rule of Evid., Rule 702); *Bragdon v. Abbott*, 524 U.S. 624, 653 (1998) (stating that an expert's opinion must have a traceable, analytical basis in objective fact before it may be considered on summary judgment).

A party opposing a motion for summary disposition cannot rely on mere allegations or denials of the moving party's facts; rather, the non-moving party must set forth specific facts demonstrating a genuine issue of material fact. See 10 C.F.R. § 2.710(b); *Advanced Medical Sys.*, CLI-93-22, 38 NRC at 102. Bare assertions and general denials, even by an expert, are insufficient to oppose a properly supported motion for summary disposition. *Duke Cogema*, LBP-05-04, 61 NRC at 81 (citing *Advanced Medical Sys.*, CLI-93-22, 38 NRC at 102); *Houston Lighting & Power Co.* (Allens Creek Nuclear Generating Station, Unit 1), ALAB-629, 13 NRC 75, 78 (1981). Although the burden is on the moving party to show there is no genuine issue of material fact, the non-moving party must controvert any material fact proffered by the moving party or that fact will be deemed admitted. *Advanced Medical Sys.*, CLI-93-22, 38 NRC at 102-03. For a Board to find the existence of a genuine issue of material fact, "the factual record, considered in its entirety, must be enough in doubt so that there is a reason to hold a hearing to resolve the issue." *Cleveland Elec. Illuminating Co.* (Perry Nuclear Power Plant, Units 1 & 2), LBP-83-46, 18 NRC 218, 223 (1983). In addition to demonstrating that no genuine issues of material fact exist, the movant must also demonstrate that it is entitled to the decision as a matter of law. *Celotex Corp. v. Catrett*, 477 U.S. 317, 323 (1986).

Because the Commission's summary disposition rules follow Rule 56 of the Federal Rules of Civil Procedure, federal court decisions that interpret and apply Rule 56 are considered appropriate precedent for the Commission's rules. See *Safety Light Corp.* (Bloomsburg Site Decommissioning and License Renewal Denials), LBP-95-9, 41 NRC 412, 449 n. 167 (1995).

See also *Advanced Medical Sys.*, CLI-93-22, 38 NRC at 102-03; *Duke Cogema Stone & Webster*, LBP-05-04, 61 NRC at 79. The adjudicating body need only consider the purported factual disputes that are "material" to the resolution of the issues raised in the summary disposition motion. *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 248 (1986). Material facts are those with the potential to affect the outcome of the case. *Ganton Technologies Inc. v. National Indus. Group Pension Plan*, 865 F. Supp 201, 205 (S.D.N.Y 1994); *Yankee Atomic Electric Co. (Yankee Nuclear Power Station)*, LBP-96-18, 44 NRC 86, 99 (1996).

II. Entergy's Motion Satisfies NRC Regulatory Requirements and Regulatory Guidance, and Is in Accordance with Commission Precedent

A. Summary of Entergy's Motion

Entergy's Motion presents two main lines of argument. First, Entergy points out that the Commission's recent decision on a similar contention in *Vermont Yankee* demonstrates that no regulation requires license renewal applicants to calculate environmentally-adjusted cumulative usage factors prior to issuance of a renewed license. Motion at 15-16, *citing Entergy Vermont Yankee LLC and Entergy Nuclear Operations, Inc. (Vermont Yankee Nuclear Generating Station)* CLI-10-17, 72 NRC \_\_, \_\_ (July 8, 2010) (slip op. at 48). Second, although the Commission's decision in *Vermont Yankee* makes it clear that CUFen calculations need not be submitted as part of an LRA., Entergy states that it has completed its calculations of the environmentally-adjusted cumulative usage factors ("CUFen"), and has shown them to be below 1.0, thus satisfying the Board's basis for admitting the contention. See Motion at 18.

B. Regulations and Regulatory Guidance Applicable to Metal Fatigue

In its Motion and the associated Statement of Material Facts, Energy sets forth a summary of the regulatory requirements and regulatory guidance associated with metal fatigue issues for license renewal. Based on its review of Entergy's Motion, the Staff has determined that Entergy has correctly set forth the applicable regulatory requirements and guidance. In

particular, the Staff agrees with Entergy's description of "Applicable 10 C.F.R. Part 54 Regulations and License Renewal Guidance" provided as part of its "Statement of Material Facts." See Material Facts at ¶¶ 1 – 7; Staff Affidavit at ¶ 8-10.

In its Motion, Entergy accurately describes "Metal Fatigue" as a weakening of metal caused by repeated or cyclic mechanical and thermal stresses. Motion at 2-3. The cumulative usage factor or "CUF" represents the fraction of the allowable fatigue cycles a component is projected to receive during its lifetime. *Id.* at 3. Entergy correctly states that the NRC Staff has recommended that the effect of the local environment (*e.g.*, reactor coolant water) be considered when reviewing metal fatigue and CUFs. Motion at 4. Consideration of these effects is accomplished by applying an environmental correction factor or "Fen" to the existing CUF to calculate<sup>5</sup> the environmentally-assisted CUF or "CUFen." See *id.*

C. The Commission's Vermont Yankee Decision Warrants the Dismissal of These Contentions

In its Motion, Entergy further describes the relationship between its CUFen and time-limited aging analyses ("TLAAs"),<sup>6</sup> and how TLAAs relate to the license renewal regulations<sup>7</sup>

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<sup>5</sup> The Staff's approved guidance for calculation of CUFens include: NUREG/CR-6583 (ANL-97/18), "Effects of LWR Coolant Environments on Fatigue Design Curves of Carbon and Low-Alloy Steels" (Feb. 1998) and NUREG/CR-5704 (ANL-98/31), "Effects of LWR Coolant Environments on Fatigue Design Curves of Austenitic Stainless Steels" (March 1999). See Motion at 4.

<sup>6</sup> The Board concluded that Entergy must include CUFen calculations in the Indian Point LRA, to comply with TLAA regulations. See Motion at 12; LBP-08-13, 68 NRC at 137-38.

<sup>7</sup> As described in 10 C.F.R. § 54.3, TLAAs 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

(continued. . .)

and the Staff's guidance documents.<sup>8</sup> See Motion at 4-6. In particular, Entergy states that its CUFens are not part of its current licensing basis, and thus are not TLAAs. Motion at 16. Further, Entergy observes that the Commission recently concluded in *Vermont Yankee* that CUFen analyses are not TLAAs and are not required to be calculated prior to issuance of a renewed license. *Id.* The Staff agrees with Entergy's characterization of TLAAs, its statement that CUFens are not part of the current licensing basis at Indian Point, and of its view that the Commission's *Vermont Yankee* decision renders the issues raised in Contentions NYS 26/26A and Riverkeeper TC1/1A, as consolidated, is moot. See *Vermont Yankee*, CLI-10-17, 72 NRC at \_\_\_, slip op. at 48. Summary disposition of the contentions is therefore appropriate.

D. Entergy's Approach to Metal Fatigue Satisfies  
Applicable NRC Regulations and Regulatory Guidance

In its Motion, Entergy discusses how the effects of aging are to be addressed for license renewal, in the absence of a TLAA. As Entergy points out, the Commission found in *Oyster Creek*,<sup>9</sup> in the absence of a TLAA, an aging management program ("AMP") of the type described in the GALL Report provides reasonable assurance that the licensee will manage the effects of aging during the period of extended operation. See Motion at 4-6 & 16-17. As Entergy explains, the GALL Report states that an acceptable option for managing metal fatigue

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(. . .continued)

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.

<sup>8</sup> As stated by Entergy, the Staff uses NUREG-1800, "Standard Review Plan for Review of License Renewal Applications [{"LRA"}] for Nuclear Power Plants" ("SRP-LR") and NUREG-1801, "Generic Aging Lessons Learned (GALL) Report," ("GALL Report") in its safety review of an LRA. See Motion at 4-5.

<sup>9</sup> *AmerGen Energy Co. LLC* (Oyster Creek Nuclear Generating Station), CLI-08-21, 68 NRC 461, 468 (2008).

of reactor coolant system ("RCS") pressure boundary components is to address the effects of the environment on fatigue life using NUREG/CR-6260 (INEL/95-0045), "Application of NUREG/CR-5999 Interim Fatigue Curves To Selected Nuclear Power Plant Components" (Feb. 1995) (available at ML031480219). Motion at 6. Acceptable methods for managing the effects of aging include evaluations, repair, replacement, and analyses.<sup>10</sup> *Id.*

Regarding the methods used at Indian Point to manage metal fatigue, Entergy states that it *originally* addressed environmentally assisted fatigue in a manner consistent with the GALL Report by projecting the analyses to the end of the period of extended operation under 10 C.F.R. § 54.21(c)(1)(ii), or by managing aging under 10 C.F.R. § 54.21(c)(1)(iii). Motion at 6. Subsequently, Entergy amended the LRA by eliminating its reliance on § 54.21(c)(1)(ii), and relying instead on an aging management program (*i.e.*, the Fatigue Monitoring Program) under 10 C.F.R. § 54.21(c)(1)(iii), along with "Commitment 33" to implement certain portions of the Fatigue Monitoring Program prior to the period of extended operation. *Id.* at 7-8. As Entergy correctly states, the Staff reviewed and approved this approach, and documented the results of its review in the Staff's Safety Evaluation Report ("SER").<sup>11</sup> *Id.* at 9.

Entergy reports that it has now completed "Commitment 33" by preparing refined fatigue analyses. Motion at 9-10. Entergy applies the Commission's ruling in *Vermont Yankee* to the facts in Indian Point, and concludes that Commitment 33 is legally sufficient. *Id.* at 16. As Entergy notes, the Commission reiterated that a commitment to an aging management program

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<sup>10</sup> The authors of NUREG/CR-6260 concluded that by removing conservative assumptions and using anticipated numbers of cycles, the CUF could be reduced to below 1.0 for most components, both for older and newer vintage plants. NUREG/CR-6260 at § 6.4. The authors also identified two major steps to reduce the CUF below 1.0: (1) more detailed finite element analyses, and (2) fatigue monitoring of transients. *Id.* The authors believed that by using realistic numbers instead of worst-case design assumptions, the CUF could be sufficiently reduced without resorting to more detailed analyses. *Id.*

<sup>11</sup> NUREG-1930, "Safety Evaluation Report Related to the License Renewal of Indian Point Nuclear Generating Unit Nos. 2 and 3" (November 2009).

that the NRC finds to be consistent with the GALL Report constitutes an acceptable method for compliance with 10 C.F.R. § 54.21(c)(1)(iii). *Id.* at 16. Entergy concludes that its commitment to implement its GALL Report-consistent Fatigue Monitoring Program is sufficient to meet the regulations, and is sufficient to resolve NYS-26/26A and TC-1/1A in Entergy's favor. *Id.* at 17.

The Staff agrees with Entergy's view that it has satisfied the requirements for CUFens under 10 C.F.R. § 54.21(c)(1)(iii), as set forth in *Vermont Yankee*. Further, the Staff agrees with Entergy's view that by submitting the results of its environmentally-assisted fatigue ("EAF") analyses, it has satisfied the Board's pre-*Vermont Yankee* concern that the calculations must be completed before the licenses can be renewed. *See Motion* at 17.

III. There Is No Genuine Issue of Material Fact

In support of its Motion, Entergy's Statement of Material Facts presents a description of the applicable NRC regulations in 10 C.F.R. Part 54 and the Staff's guidance documents (Material Facts at ¶¶ 1-7); a background on metal fatigue and cumulative usage factors (*id.* at ¶¶ 8-16); an overview of environmentally-assisted fatigue and related NRC guidance (*id.* at ¶¶ 17-22); an overview of the IPEC Fatigue Monitoring Program (*id.* at ¶¶ 23-57); the findings in the Staff's SER concerning metal fatigue (*id.* at ¶ 41); and the analyses of environmentally-assisted fatigue that have been performed by Westinghouse (*id.* at ¶¶ 42-49).

As set forth in the attached Affidavit of On H. Yee and Kimberly J. Green, the Staff has reviewed Entergy's Statement of Material Facts, the Motion, and the other attachments to its Motion, and agrees with Entergy that no genuine issue of material fact exists with respect to these contentions. *See Staff Affidavit* at ¶¶ 8-10.

Kimberly J. Green, is the Staff's Senior Project Manager for safety issues pertaining to the Indian Point license renewal application; she participated in the on-site audit of Indian Point, coordinated writing of the Staff's Safety Evaluation Report, and wrote the Staff's audit report. *Staff Affidavit* at ¶¶ 2 & 5, and Statement of Professional Qualifications of Kimberly J. Green.

Ms. Green is familiar with the metal fatigue contentions as filed by the parties and as admitted by the Board. Staff Affidavit at ¶ 4. She reviewed Entergy's statements of material facts and identified no material dispute with Entergy's descriptions of applicable NRC regulations and guidance (Material Facts at ¶¶ 1-7); metal fatigue (*id.* at ¶¶ 8-16); environmentally-assisted fatigue (*id.* at ¶¶ 17-22); the IPEC Fatigue Monitoring Program (*id.* at ¶¶ 23-57); the characterization of the Staff's findings (*id.* at 41) and the characterization of the Westinghouse Environmental Fatigue Calculations (*id.* at 42-49). See Staff Affidavit at ¶¶ 8-10.

Mr. On H. Yee is an NRC employee with expertise in the area of metal fatigue. See Staff Affidavit at ¶ 1 & 6. Mr. Yee reviewed the metal fatigue contentions and the Board's order admitting the contentions, as well as Entergy's Motion and supporting documents, and the Staff's findings. See *id.* at ¶¶ 4, and 8-9. Mr. Yee finds that Entergy's Statement of Material Facts is correct. *Id.* at ¶ 10. Based on its review of these matters, the Staff has determined that no genuine issues of material fact exist with respect to Contentions NYS-26/26A and Riverkeeper TC-1/1A, as consolidated.

Finally, the Staff has reviewed, and agrees with, Entergy's assertion that Contention NYS-26/26A is fully addressed because Entergy (1) completed its environmentally-assisted fatigue analyses,( 2) provided CUFen values for components of interest, and (3) provided specific actions to be taken under the Fatigue Monitoring Program. Motion at 20. Similarly, the Staff has reviewed, and agrees with, Entergy's assertion that Riverkeeper Contention TC-1/1A is addressed, in that (1) Entergy has not improperly omitted any component and there is no requirement nor need to "broaden" its analyses further (*id.* at 20-21), (2) the selected locations are not vague, unrealistic, or inadequate (*id.* at 21), and (3) there is presently no need for corrective actions under the Fatigue Monitoring Program, but if needed in the future, the actions described in the corrective action program are not vague (*id.* at 21-23) (discussing how future analysis updates are governed by Entergy's QA program, and component repair or replacement

is performed in accordance with established plant procedures).

CONCLUSION

For the reasons discussed above and in the attached Joint Affidavit of On H. Yee and Kimberly J. Green, the Staff has concluded that no genuine disputes of material fact exist regarding New York State Contention NYS-26/26A and Riverkeeper Contention TC-1/1A, as consolidated. Accordingly, the Staff respectfully submits that the Applicant's Motion should be granted as a matter of law, and that Contentions NYS-26/26A and TC-1/1A, as consolidated, should now be dismissed.

Respectfully submitted,



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Dated at Rockville, Maryland  
this 14<sup>th</sup> day of September 2010

September 14, 2010

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

AFFIDAVIT OF KIMBERLY J. GREEN AND ON H. YEE

Kimberly J. Green ("KG") and On Yee ("OY") do hereby state as follows:

1. (OY) I am employed as a Mechanical Engineer in the Aging Management of Reactor Systems and Guidance Update Branch, Division of License Renewal, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, in Rockville, MD. A statement of my professional qualifications is attached.

2. (KG) I am employed as a Senior Project Manager in Projects Branch 2, Division of License Renewal, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Rockville, MD. A statement of my professional qualifications is attached.

3. (KG, OY) This Affidavit is prepared in response to the "Motion for Summary Disposition of New York (NYS-26/26A) and Riverkeeper, Inc. (TC-1/1A) -- Metal Fatigue" filed on August 25, 2010, by Entergy Nuclear Operations, Inc. ("Applicant" or "Entergy").

4. (OY, KG) As part of our official responsibilities, we reviewed Riverkeeper, Inc.'s contention TC-1/1A, New York State's Contention NYS-26/26A, the Licensing Board's ruling in *Entergy Nuclear Operations, Inc. (Indian Point, Units 2 and 3)*, LBP-08-13, 68 NRC 43, 218-19 (2008), and the "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" (August 21, 2008).

5. (KG) As part of my official responsibilities, I participated in the NRC Staff's on-site audit and review of Indian Point's aging management programs ("AMPs"), aging management reviews ("AMRs"), and time limited aging analyses ("TLAAs"), and I wrote the Audit Report and coordinated preparation of the SER. These responsibilities included participation in the Staff's review and evaluation of metal fatigue issues for the Indian Point LRA.

6. (OY) As part of my official responsibilities, I participated in the NRC Staff's review of metal fatigue issues pertaining to the license renewal applications for several nuclear power plants other than Indian Point. In addition, I participated in the Staff's on-site audit of Indian Point TLAAs. I am familiar with Entergy's treatment of metal fatigue issues in the Indian Point LRA and related submittals, and participated in the Staff's review and evaluation of metal fatigue issues pertaining to the Indian Point LRA.

7. (OY, KG) We are familiar with the discussions of Metal Fatigue in NUREG-1930, Vol. 1 & 2, "Safety Evaluation Report Related to the License Renewal of Indian Point Nuclear Generating Unit Nos. 2 and 3," (Nov. 2009) ("SER"), and the "Audit Report Regarding the License Renewal Application for Indian Point Nuclear Audit Report for Plant Aging Management Programs and Reviews," (January 13, 2009) ("Audit Report").

8. (OY, KG) As part of our official duties, we reviewed the "Applicant's Motion for Summary Disposition of New York (NYS-26/26A) and Riverkeeper, Inc. (TC-1/1A) -- Metal Fatigue" ("Motion"); the Applicant's "Statement of Material Facts" dated August 25, 2010 (Motion Att. 1 or "Material Facts"); and 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 (Motion Att. 2 or "Azevedo Decl.").

9. (OY, KG) As part of our official duties, we reviewed Motion Attachments 3-14, and are familiar with Proprietary Attachment 15 "Westinghouse Electric Co., WCAP-17199-P, Revision 0, Environmental Fatigue Evaluation for Indian Point Unit 2 (June 2010)" and

Proprietary Att. 16 "Westinghouse Electric Co., WCAP-17200-P, Revision 0, Environmental Fatigue Evaluation for Indian Point Unit 3 (June 2010)."

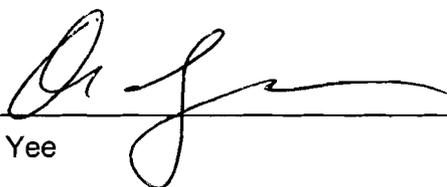
10. (OY, KG) Based on our review of the above documents, we are satisfied that Entergy's "Statement of Material Facts" ¶¶ 1-49 are true and correct.

11. (KG) In accordance with 10 C.F.R. § 2.304(d), I declare under penalty of perjury that the statements contained in Paragraphs 2-5 and 7-10 above are true and correct to the best of my knowledge, information, and belief.

  
\_\_\_\_\_  
Kimberly J. Green

Executed in Rockville, Maryland  
this 14<sup>th</sup> day of September, 2010

12. (OY) In accordance with 10 C.F.R. § 2.304(d), I declare under penalty of perjury that the statements contained in Paragraphs 1, 3-4, and 6-10 above are true and correct to the best of my knowledge, information, and belief.

  
\_\_\_\_\_  
On H. Yee

Executed in Rockville, Maryland  
this 14<sup>th</sup> day of September, 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-LR/50-286-LR  
 )  
(Indian Point Nuclear Generating )  
Units 2 and 3) )

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing "NRC STAFF'S ANSWER TO APPLICANT'S MOTION FOR SUMMARY DISPOSITION OF NEW YORK CONTENTION NYS-26/26A AND RIVERKEEPER CONTENTION TC-1/1A -- METAL FATIGUE," dated September 14, 2010, have been served upon the following through deposit in the NRC's internal mail system, with copies by electronic mail, as indicated by an asterisk, or by deposit in the U.S. Postal Service, as indicated by double asterisk, with copies by electronic mail this 14<sup>th</sup> day of September 2010:

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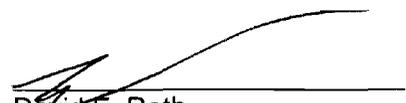
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