

RAS-E-96

May 1, 2008

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
ATOMIC SAFETY AND LICENSING BOARD

DOCKETED
USNRC

May 2, 2008 (9:00am)

Before Administrative Judges:
Lawrence G. McDade, Chairman
Dr. Richard E. Wardwell
Dr. Kaye D. Lathrop

OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

In the Matter of)	
)	
)	
Entergy Nuclear Operations, Inc.)	Docket Nos.
(Indian Point Nuclear Generating)	50-247-LR
Units 2 and 3))	and 50-286-LR

**RIVERKEEPER, INC.'S REPLY TO ENTERGY'S AND NRC STAFF'S
OPPOSITIONS TO REQUEST FOR ADMISSION
OF AMENDED CONTENTION TC-1**

I. INTRODUCTION

Pursuant to the Atomic Safety and Licensing Board's Order of April 9, 2008, Riverkeeper, Inc. ("Riverkeeper") hereby replies to the responses by Entergy Nuclear Operations, Inc. ("Entergy") and the U.S. Nuclear Regulatory Commission ("NRC" or "Commission") Staff's responses in opposition to Riverkeeper's request for admission of amended Contention TC-1. Answer of Entergy Nuclear Operations, Inc. to Riverkeeper's Request for Admission of Amended Contention TC-1 (Concerning Environmentally Assisted Metal Fatigue) (March 31, 2008) ("Entergy Answer"); NRC Staff's Response to Riverkeeper, Inc.'s Request for Admission of Amended Contention TC-1 ["TC-1A"] (Metal Fatigue) (April 21, 2008) ("NRC Staff Response"). As demonstrated below, Entergy and the Staff have failed to show that the amended contention is inadmissible.

TEMPLATE= SECY-037

D8-03

II. DISCUSSION

Neither Entergy nor the Staff objects to Amended Contention TC-1 on timeliness grounds, but they both argue that it is inadmissible. They assert that by deleting from its license renewal application (“LRA”) the assertion that Entergy has complied with 10 C.F.R. § 54.21(c)(1)(i), and substituting an assertion that aging effects will be managed in the future under 10 C.F.R. § 54.21(c)(1)(iii), Entergy has deprived Riverkeeper of a legal basis for its contention. Entergy Answer at 8, NRC Staff Response at 6. In other words, they contend that Entergy satisfies the NRC’s license renewal regulations by committing to revise, before renewed operations begin, any previous cumulative usage factor (“CUFs”) calculations that were greater than 1.0; and by committing to repair or replace any components whose environmentally adjusted CUFs remain greater than 1.0. *Id.*

Their argument is both legally infirm and self-contradictory. First, in arguing that a license renewal applicant could satisfy 10 C.F.R. § 54.21(c)(1)(iii) by committing to conduct CUF calculations in the future, Entergy and the Staff read Section 54.21(c)(1)(i) out of the regulations, in contravention of a basic principle of statutory and regulatory interpretation, namely that a statute or regulation must be read as a whole and effect given to each word. *Wrangler Laboratories, et. al.*, ALAB-951, 33 NRC 505, 513-514 (1991). NRC license renewal regulation 10 C.F.R. § 54.21(c)(1) requires that each license renewal application “must contain” the following information:

- (c) An evaluation of time-limited aging analyses.
 - (1) A list of time-limited aging analyses, as defined in § 54.3, must be provided. The applicant shall demonstrate that –
 - (i) The analyses remain valid for the period of extended operation;
 - (ii) The analyses have been projected to the end of the period of extended operation; or

(iii) The effects of aging on the intended function(s) will be adequately managed for the period of extended operation.

Entergy's and the Staff's argument that Entergy can satisfy Section (c)(1)(iii) by committing to comply with Section (c)(1)(i) or (c)(1)(ii) at some time in the future effectively render subsections (i) and (ii) superfluous. By its own terms, 10 C.F.R. § 54.21 gives license renewal applicants the option of either showing that aging effects are not a concern under subsections (i) and (ii), or that they will be adequately managed. It does not give Entergy the option of postponing, until after the license renewal decision is made, a showing that aging effects are not a concern.¹

Second, Entergy's method for conducting its TLAAAs is a material licensing issue that may not be excluded from the license renewal hearing for Indian Point. *Union of Concerned Scientists v. NRC*, 735 F.2d 1437, 1451 (D.C. Cir.1984), cert. denied, 469 U.S. 1132 (1985). As reflected in a recent NRC Staff notice to all licensees, because NRC guidance gives license renewal applicants some discretion in choosing a method for conducting fatigue analysis, the TLAA analysis is not a mere ministerial act that can be exempted from the Atomic Energy Act's hearing requirement. In Draft NRC Regulatory

¹ At page 10, the NRC Staff incorrectly cites the following language from NUREG-1801, Rev. 1, *Generic Aging Lessons Learned (GALL) Report* (2005), for the proposition that aging analyses are "treated no differently than repair or replacement:"

Acceptable corrective actions include repair of the component, replacement of the component, *and* a more rigorous analysis of the component to demonstrate that the design code limit will not be exceeded during the extended period of operation.

GALL Report, Section X.M1 (emphasis added). The Staff ignores the important word "and" (italicized above), which demonstrates that a rigorous analysis must be performed *in conjunction with*, not in lieu of, repair or replacement of a component.

Issue Summary 2008-XX, Fatigue Analysis of Nuclear Power Plant Components (April 11, 2008) (“NRC Notice”) (copy appended as Attachment 1), the Staff raised a concern about the conservatism of TLAAs where license renewal applicants had used a “simplified input” to their stress analyses. Just as the licensee’s choice of a methodology in that case determined its compliance with 10 C.F.R. § 54.21(c)(1), so Entergy’s choice and application of a method for its revised CUF calculations will determine Entergy’s compliance with the regulation. Therefore it is a material licensing issue that should not be deferred until post-licensing.

Third, Entergy’s and the NRC Staff’s position is inconsistent with the position they have taken in the Vermont Yankee license renewal proceeding, in which the NRC refused to accept a commitment by Entergy to submit CUF calculations at a later date, and Entergy agreed to perform time limited aging analyses (“TLAAs”), *i.e.*, environmentally adjusted CUF calculations, in the context of its license renewal application. In License Renewal Commitment 27 for the Vermont Yankee license renewal case, Entergy took the same position that it is taking in this case with respect to the timing of its calculation of CUFs:

At least 2 years prior to entering the period of extended operation, for the locations identified in NUREG/CR-6260 for BWRs of the VY vintage, VY will refine our current fatigue analyses to include the effects of reactor water environment and verify that the cumulative usage factors (CUFs) are less than 1.

Letter from Ted A. Sullivan, Entergy, to NRC re: Vermont Yankee Nuclear Power Station, License No. DPR-28 (Docket No. 50-271), License Renewal Application, Amendment 3, Attachment 1 at 5 (July 6, 2006) (copy appended as Attachment 2).

On August 20, 2007, the NRC Staff rejected Commitment 27, stating that:

It is the NRC position that in order to meet the requirements of 10 CFR § 54.21(c)(1), an applicant for license renewal must demonstrate *in the LRA* that the evaluation of the time-limited aging analyses (TLAA) has been completed. The NRC does not accept a commitment to complete the evaluation of TLAA prior to entering the period of extended operation.

Fatigue analyses based on a set of design transients and the life of the plant are treated as TLAAs. The applicant made a commitment (license renewal Commitment # 27) to address environmentally assisted fatigue by refining fatigue analyses to include the effects of reactor water environment to verify that the cumulative usage factors are less than 1.0. The NRC could not accept this commitment.

Based on the discussion, the applicant agreed to amend its LRA to demonstrate that the evaluation of the TLAA has been completed. The NRC's review of this TLAA evaluation will be documented in the final VYNPS safety evaluation report.

NRC Summary of Telephone Conference Call Held on August 20, 2007, Between the U.S. Nuclear Regulatory Commission and Entergy Nuclear Operations, Inc., Concerning the Vermont Yankee Nuclear Power Station License Renewal Application, Enclosure 2 (October 25, 2007) (emphasis added) (copy appended as Attachment 3). Entergy's and the Staff's actions in the Vermont Yankee license renewal case therefore fatally undermine their claim that there is no issue of law with respect to the question of whether Entergy must complete its TLAAs, including its CUF calculations, in this license renewal proceeding.

Entergy does not dispute Riverkeeper's claim that if CUFs for representative components are greater than one, it must expand the scope of its TLAAs. Entergy Answer at 9. *See also* NRC Staff Response at 11. But Entergy disputes Riverkeeper's assertion that the scope must be expanded to include all vulnerable *components*, arguing

that Riverkeeper's position is not supported by the regulatory guidance. *Id.*

Entergy's interpretation of the guidance is incorrect. NUREG-101, the "GALL Report," instructs that if representative components cannot be shown to have a CUF of less than 1.0, corrective actions that must be taken "include a review of additional affected reactor coolant pressure boundary locations". *Id.* at X M-2. Riverkeeper believes the word "additional" must be read in conjunction with the word "affected," thereby requiring Entergy to address any affected components in addition to the ones it has already evaluated. Riverkeeper's interpretation of the guidance is consistent with industry guidance document MRP-47, which states that if plant-specific evaluations do not show that CUFs will remain below 1.0 for 60 years, "plant specific evaluations should expand the sampling of locations accordingly to include other locations where high usage factors might be a concern." MRP-47, Revision 1, Electric Power Institute, *Materials Reliability Program: Guidelines for Addressing Fatigue Environmental Effects in a License Renewal Application* at 3-4 (2005). This wording indicates that if it is *possible* that high usage factors is a concern for a location, it should be evaluated. Riverkeeper respectfully submits that its interpretation is not only reasonable, but is consistent with the purpose of the NRC's license renewal regulations, to ensure that aging risks for any component that is covered by the license renewal regulations and that has the potential to for age-induced failure during the license renewal term must be addressed. Once a set of TLAAAs shows that aging components cannot be relied on throughout a license renewal term, a reasonable assurance of safety cannot be obtained unless a comprehensive analysis is made of the plant's vulnerabilities. In any event, the

fundamental disagreement between Riverkeeper and Entergy and NRC Staff regarding the proper scope of Entergy's revised CUF analyses represents a genuine and material dispute, which should be admitted for a hearing.

Entergy also disputes Riverkeeper's claim that Entergy does not intend to re-evaluate all NUREG/CR-6260 locations. According to Entergy, it "will evaluate the limiting locations identified in NUREG/CR-6260 (shown in Tables 4.3-13 and 4.3-14) using a more refined fatigue analysis consistent with the guidance of the GALL Report, Section X.M1." Entergy Answer at 9-10. Entergy asserts that the components listed in the LRA tables are the same components that are listed in NUREG/CR-6260. *Id.* But Entergy's statement contradicts the plain language of the LRA Amendment, which states that Entergy intends to use existing CUFs for locations "with existing fatigue analysis valid for the period of extended operation." LRA Amendment 2, Attachment 1 at 1. This language would allow Entergy to drop its commitment to recalculate CUFs for five locations for which it now lacks plant-specific CUFs: the RCS piping safety injection nozzle and RHR Class 1 piping at Unit 2 (Table 4.3-13) and the RCS piping charging system nozzle, RCS piping safety injection nozzle, and RHR Class 1 piping at Unit 3 (Table 4.3-14).

Thus, Entergy's Response shows there is a genuine and material issue of fact that must be litigated in a hearing. Indeed, it is clear from the GALL Report that component of interest are those which are risk significant: NUREG/CR- 6260 locations are examples of risk significant components and must be maintained in the rigorous analysis:

The AMP [aging management program] addresses the effects of the coolant environment on component fatigue life by assessing the impact of the reactor

coolant environment on a sample of critical components for the plant. Examples of critical components are identified in NUREG/CR-6260. *The sample of critical components can be evaluated by applying environmental life correction factors to the existing ASME Code fatigue analyses.*

Gall Report, Section X.M1 (emphasis added).

Finally, Entergy argues that there is “no factual or legal basis for Riverkeeper’s claim that the LRA is unacceptably vague with respect to Entergy’s plans for addressing EAF during the period of extended operations.” Entergy Answer at 11. Entergy argues that it has provided “considerable and sufficient ‘substantive’ information.” *Id.* Entergy simply ignores Riverkeeper’s argument that it must provide “a credible and acceptable methodology for calculating CUFs, [and] Entergy’s criteria for repairing or replacing equipment.” An aging management plan must provide sufficient detail to “*demonstrate*” that the applicant “*will*” adequately manage aging of equipment; it is not sufficient to merely “summarize options for future plans.” *Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc.* (Vermont Yankee Nuclear Power Station), LBP-06-20, 64 NRC 131, 186 (2006) (emphasis in original) (admitting contention challenging insufficiency of license renewal applicant’s description of program for management of fatigue). Entergy has failed to provide any information about how Entergy will select components for a “refined” CUF analysis (LRA Amendment 2, Attachment 1 at 3), how the CUF calculations will be refined, or how those calculations will be used to manage aging. Entergy does not state what aging management measures it intends to take as an alternative to repair or replacement; how it will decide between repair, replacement or some other option; or at what level below 1.0 a CUF measurement will trigger aging management measures. In fact, tellingly, Entergy does not commit to repair or

replacement, but instead states that the Fatigue Monitoring Program “requires corrective actions *including* repair or replacement of affected components.” LRA Amendment 2, Attachment 1 at 4.

In claiming it has provided sufficient information about its aging management program, Entergy also argues that it is sufficient to cross-reference Appendix B to Part 50. Entergy Answer at 11. But Entergy misses the point of the Part 54 regulations, which is that Entergy’s license renewal application must address the age-related problems that are unique to the license renewal term, and therefore may not be sufficiently covered by existing regulations. *See* Final Rule, Nuclear Power Plant License Renewal; Revisions, 60 Fed. Reg. 22,461, 212,463-64 (May 8, 1995).

In addition, Entergy ignores the fact that Riverkeeper has established a fundamental disagreement with Entergy as to what constitutes an appropriate Fen. Entergy uses non conservative values for the Fen, while Riverkeeper believes that the Fen should be based on more recent data and more conservative value of Fen as described in NUREG-6909. Moreover, as discussed in Contention TC-1, many of the existing CUFs are already very close to one and therefore a multiplication by the appropriate Fen will cause the CUF of many components to exceed unity. Entergy has not explained what factors will result in refined CUF calculations of less than one for these components. Riverkeeper, Inc.’s Request for Hearing and Petition to Intervene in the License Renewal Proceeding for the Indian Point Nuclear Power Plant at 7 at 14-15 (November 30, 2007).

Entergy provides no clue as to what methods it will use to determine the corrected CUFen ($CUF_{en} = CUF \times Fen$). The validity of the FEMP cannot be

determined without a clear and specific description of such methods. Examples of issues that should be addressed are:

1. How will the design transients at IP be tracked? What parameters other than pressure, *i.e.*, flow rates, will be used to calculate actual stress histories?
2. Which analysis will be used to comply with Section III of the ASME code, *i.e.*, NB-3600, (b)Classical NB-3200 or (c)Simplified NB-3200 (with Green's Function)?
3. Which computer codes or other tools will be used to determine the oxygen concentrations at the surface of the component during transients?
4. How will oxygen excursions be projected to the extended period?
5. How will laboratory data on Fen from laboratory tests with smooth specimens be corrected to account for differences between laboratory and reactor environments?
6. How will the number of transient during the extended period be determined?

The necessity of providing this type of information, in order to allow an evaluation of the adequacy of a license renewal applicant's methodology for conducting aging analyses, is illustrated by the NRC Notice discussed at page 4 above.

III. CONCLUSION

For the foregoing reasons, the ASLB should admit Amended Contention TC-1.

Respectfully submitted,


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May 1, 2008

ATTACHMENT 1

UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION
WASHINGTON, DC 20555-0001

April 11, 2008

DRAFT
NRC REGULATORY ISSUE SUMMARY 2008-XX
FATIGUE ANALYSIS OF NUCLEAR POWER PLANT COMPONENTS

ADDRESSEES

All holders of operating licenses for nuclear power reactors, except those who have permanently ceased operations and have certified that fuel has been permanently removed from the reactor vessel.

INTENT

The U.S. Nuclear Regulatory Commission (NRC) is issuing this regulatory issue summary (RIS) to inform licensees of an analysis methodology used to demonstrate compliance with the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) fatigue acceptance criteria that could be nonconservative if not correctly applied.

BACKGROUND INFORMATION

Title 10 of the *Code of Federal Regulations* (10 CFR) Part 54, "Requirements for Renewal of Operating Licenses for Nuclear Power Plants," requires that applicants for license renewal perform an evaluation of time-limited aging analyses relevant to structures, systems, and components within the scope of license renewal. The fatigue analysis of the reactor coolant pressure boundary components is an issue that involves time-limited assumptions. In addition, the staff has provided guidance in NUREG-1800, Rev. 1, "Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants," issued September 2005. NUREG-1800, Rev. 1, specifies that the effects of the reactor water environment on fatigue life be evaluated for a sample of components to provide assurance that cracking because of fatigue will not occur during the period of extended operation. Since the reactor water environment has a significant impact on the fatigue life of components, many license renewal applicants have performed supplemental detailed analyses to demonstrate acceptable fatigue life for these components.

10 CFR 50.55a, "Codes and Standards," specifies the ASME Code requirements for operating reactors. Some operating facilities may have performed supplemental detailed analysis of components because of new loading conditions identified after the plant began operation.

ML080950235

SUMMARY OF ISSUE

The staff identified a concern regarding the methodology used by some license renewal applicants to demonstrate the ability of nuclear power plant components to withstand the cyclic loads associated with plant transient operations for the period of extended operation. This particular analysis methodology involves the use of the Green's function to calculate the fatigue usage during plant transient operations such as startups and shutdowns.

The Green's function approach involves performing a detailed stress analysis of a component to calculate its response to a step change in temperature. This detailed analysis is used to establish an influence function, which is subsequently used to calculate the stresses caused by the actual plant temperature transients. This methodology has been used to perform fatigue calculations and as input for on-line fatigue monitoring programs. The Green's function methodology is not in question. The concern involves a simplified input for applying the Green's function in which only one value of stress is used for the evaluation of the actual plant transients. The detailed stress analysis requires consideration of six stress components, as discussed in ASME Code, Section III, Subsection NB, Subarticle NB-3200. Simplification of the analysis to consider only one value of the stress may provide acceptable results for some applications; however, it also requires a great deal of judgment by the analyst to ensure that the simplification still provides a conservative result.

The staff has requested that recent license renewal applicants that have used this simplified Green's function methodology perform confirmatory analyses to demonstrate that the simplified Green's function analyses provide acceptable results. The confirmatory analyses retain all six stress components. To date, the confirmatory analysis of one component, a boiling-water reactor feedwater nozzle, indicated that the simplified input for the Green's function did not produce conservative results in the nozzle bore area when compared to the detailed analysis. However, the confirmatory analysis still demonstrated that the nozzle had acceptable fatigue usage.

Licensees may have also used the simplified Green's function methodology in operating plant fatigue evaluations for the current license term. For plants with renewed licenses, the staff is considering additional regulatory actions if the simplified Green's function methodology was used.

BACKFIT DISCUSSION

This RIS informs addressees of a potential nonconservative calculation methodology and reminds them that the ASME Code fatigue analysis should be performed properly. For license renewal, metal fatigue is evaluated as a time-limited aging analysis in accordance with 10 CFR 54.21(c). The associated staff review guidance appears in Section 4.3, "Metal Fatigue Analysis," of NUREG-1800, Rev. 1. For operating reactors, the ASME Code requirements appear in 10 CFR 50.55a. This RIS does not impose a new or different regulatory staff position. It requires no action or written response and, therefore, is not a backfit under 10 CFR 50.109, "Backfitting." Consequently, the NRC staff did not perform a backfit analysis.

FEDERAL REGISTER NOTIFICATION

A notice of opportunity for public comment on this RIS was published in the *Federal Register* (xx FR xxxxx), on { xx, 2008}. Comments were received from {indicate the number of commentors by type}. The staff considered all comments. The staff's evaluation of the comments is publicly available through NRC's Agencywide Documents Access and Management System under Accession No. ML #####.

CONGRESSIONAL REVIEW ACT

The NRC has determined that this RIS is not a rule as designated by the Congressional Review Act (5 U.S.C. §§801–808) and; therefore, is not subject to the Act.

PAPERWORK REDUCTION ACT STATEMENT

This RIS does not contain information collection requirements that are subject to the requirements of the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.).

Public Protection Notification

The NRC may not conduct or sponsor, and a person is not required to respond to, a request for information or an information collection requirement unless the requesting document displays a currently valid Office of Management and Budget control number.

CONTACT

Please direct any questions about this matter to the technical contacts listed below.

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Note: The NRC's generic communications may be found on the NRC public Web site,
<http://www.nrc.gov>, under Electronic Reading Room/Document Collections.

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ATTACHMENT 2



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July 6, 2006

Docket No. 50-271
BVY 06-058
TAC No. MC 8634

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Reference: 1. Letter, Entergy to USNRC, "Vermont Yankee Nuclear Power Station, License No. DPR-28, License Renewal Application," BVY 06-009, dated January 25, 2006.

Subject: **Vermont Yankee Nuclear Power Station
License No. DPR-28 (Docket No. 50-271)
License Renewal Application, Amendment 3**

On January 25, 2006, Entergy Nuclear Operations, Inc. and Entergy Nuclear Vermont Yankee, LLC (Entergy) submitted the License Renewal Application for the Vermont Yankee Nuclear Power Station (VYNPS) as indicated by Reference 1. Attachment 1 transmits the VYNPS License Renewal Commitments List, Revision 0, that would go into effect upon NRC approval of the License Renewal Application.

Should you have any questions concerning this letter, please contact Mr. James DeVincentis at (802) 258-4236.

I declare under penalty of perjury that the foregoing is true and correct. Executed on July 6, 2006.

Sincerely,

A handwritten signature in black ink, appearing to read "Ted A. Sullivan", written over a horizontal line.

Ted A. Sullivan
Site Vice President
Vermont Yankee Nuclear Power Station

Attachment 1

cc: See next page.

A117

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Attachment 1

Vermont Yankee Nuclear Power Station

License Renewal Application - Amendment 3

License Renewal Commitment List - Revision 0

**VERMONT YANKEE NUCLEAR POWER STATION
LICENSE RENEWAL COMMITMENT LIST
REVISION 0**

During the development and review of the Vermont Yankee Nuclear Power Station License Renewal Application, Entergy made commitments to provide aging management programs to manage the effects of aging on structures and components during the extended period of operation. The following table lists these license renewal commitments, along with the implementation schedule and the source of the commitment.

ITEM	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	Related LRA Section No./ Comments
1	Guidance for performing examinations of buried piping will be enhanced to specify that coating degradation and corrosion are attributes to be evaluated.	March 21, 2012	BVY 06-009	B.1.1/Audit Items 5 & 130
2	Fifteen (15) percent of the top guide locations will be inspected using enhanced visual inspection technique, EVT-1, within the first 18 years of the period of extended operation, with at least one-third of the inspections to be completed within the first 6 years and at least two-thirds within the first 12 years of the period of extended operation. Locations selected for examination will be areas that have exceeded the neutron fluence threshold.	As stated in the commitment	BVY 06-009	B.1.7/Audit Item 14
3	The Diesel Fuel Monitoring Program will be enhanced to ensure ultrasonic thickness measurement of the fuel oil storage tank bottom surface will be performed every 10 years during tank cleaning and inspection.	March 21, 2012	BVY 06-009	B.1.9
4	The Diesel Fuel Monitoring Program will be enhanced to specify UT measurements of the fuel oil storage tank bottom surface will have acceptance criterion $\geq 60\%$ Tnom.	March 21, 2012	BVY 06-009	B.1.9
5	The Fatigue Monitoring Program will be modified to require periodic update of cumulative fatigue usage factors (CUFs), or to require update of CUFs if the number of accumulated cycles approaches the number assumed in the design calculation.	March 21, 2012	BVY 06-009	B.1.11
6	A computerized monitoring program (e.g., FatiguePro) will be used to directly determine cumulative fatigue usage factors (CUFs) for locations of interest.	March 21, 2012	BVY 06-009	B.1.11
7	The allowable number of effective transients will be established for monitored transients. This will allow quantitative projection of future margin.	March 21, 2012	BVY 06-009	B.1.11

**VERMONT YANKEE NUCLEAR POWER STATION
LICENSE RENEWAL COMMITMENT LIST
REVISION 0**

ITEM	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	Related LRA Section No./ Comments
8	Procedures will be enhanced to specify that fire damper frames in fire barriers will be inspected for corrosion. Acceptance criteria will be enhanced to verify no significant corrosion.	March 21, 2012	BVY 06-009	B.1.12.1/Audit Items 35, 151, 152 & 153
9	Procedures will be enhanced to state that the diesel engine sub-systems (including the fuel supply line) will be observed while the pump is running. Acceptance criteria will be enhanced to verify that the diesel engine did not exhibit signs of degradation while it was running; such as fuel oil, lube oil, coolant, or exhaust gas leakage.	March 21, 2012	BVY 06-009	B.1.12.1/Audit Items 33, 150 & 155
10	Fire Water System Program procedures will be enhanced to specify that in accordance with NFPA 25 (2002 edition), Section 5.3.1.1.1, when sprinklers have been in place for 50 years a representative sample of sprinkler heads will be submitted to a recognized testing laboratory for field service testing. This sampling will be repeated every 10 years.	March 21, 2012	BVY 06-009	B.1.12.2
11	The Fire Water System Program will be enhanced to specify that wall thickness evaluations of fire protection piping will be performed on system components using non-intrusive techniques (e.g., volumetric testing) to identify evidence of loss of material due to corrosion. These inspections will be performed before the end of the current operating term and during the period of extended operation. Results of the initial evaluations will be used to determine the appropriate inspection interval to ensure aging effects are identified prior to loss of intended function.	March 21, 2012	BVY 06-009	B.1.12.2/Audit Items 37 & 41
12	Implement the Heat Exchanger Monitoring Program as described in LRA Section B.1.14.	March 21, 2012	BVY 06-009	B.1.14
13	Implement the Non-EQ Inaccessible Medium-Voltage Cable Program as described in LRA Section B.1.17.	March 21, 2012	BVY 06-009	B.1.17
14	Implement the Non-EQ Instrumentation Circuits Test Review Program as described in LRA Section B.1.18.	March 21, 2012	BVY 06-009	B.1.18
15	Implement the Non-EQ Insulated Cables and Connections Program as described in LRA Section B.1.19.	March 21, 2012	BVY 06-009	B.1.19

**VERMONT YANKEE NUCLEAR POWER STATION
LICENSE RENEWAL COMMITMENT LIST
REVISION 0**

ITEM	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	Related LRA Section No./ Comments
16	Implement the One-Time Inspection Program as described in LRA Section B.1.21. Include destructive or non-destructive examination of one (1) socket welded connection using techniques proven by past industry experience to be effective for the identification of cracking in small bore socket welds. Should an inspection opportunity not occur (e.g., socket weld failure or socket weld replacement), a susceptible small-bore socket weld will be examined either destructively or non-destructively prior to entering the period of extended operation.	March 21, 2012	BVY 06-009	B.1.21/Audit Item 330
17	Enhance the Periodic Surveillance and Preventive Maintenance Program as necessary to assure that the effects of aging will be managed as described in LRA Section B.1.22.	March 21, 2012	BVY 06-009	B.1.22
18	Enhance the Reactor Vessel Surveillance Program to proceduralize the data analysis, acceptance criteria, and corrective actions described in the program description in LRA Section B.1.24.	March 21, 2012	BVY 06-009	B.1.24
19	Implement the Selective Leaching Program as described in LRA Section B.1.19.	March 21, 2012	BVY 06-009	B.1.25
20	Enhance the Structures Monitoring Program to specify that process facility crane rails and girders, condensate storage tank (CST) enclosure, CO ₂ tank enclosure, N ₂ tank enclosure and restraining wall, CST pipe trench, diesel generator cable trench, fuel oil pump house, service water pipe trench, man-way seals and gaskets, and hatch seals and gaskets are included in the program.	March 21, 2012	BVY 06-009	B.1.27.2
21	Guidance for performing structural examinations of wood to identify loss of material, cracking, and change in material properties will be added to the Structures Monitoring Program.	March 21, 2012	BVY 06-009	B.1.27.2
22	Guidance for performing structural examinations of elastomers (seals and gaskets) to identify cracking and change in material properties (cracking when manually flexed) will be enhanced in the Structures Monitoring Program procedure.	March 21, 2012	BVY 06-009	B.1.27.2

**VERMONT YANKEE NUCLEAR POWER STATION
 LICENSE RENEWAL COMMITMENT LIST
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ITEM	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	Related LRA Section No./ Comments
23	Guidance for performing structural examinations of PVC cooling tower fill to identify cracking and change in material properties will be added to the Structures Monitoring Program procedure.	March 21, 2012	BVY 06-009	B.1.27.2
24	System walkdown guidance documents will be enhanced to perform periodic system engineer inspections of systems in scope and subject to aging management review for license renewal in accordance with 10 CFR 54.4 (a)(1) and (a)(3). Inspections shall include areas surrounding the subject systems to identify hazards to those systems. Inspections of nearby systems that could impact the subject system will include SSCs that are in scope and subject to aging management review for license renewal in accordance with 10 CFR 54.4 (a)(2).	March 21, 2012	BVY 06-009	B.1.28/Audit Items 187, 188 & 190
25	Implement the Thermal Aging and Neutron Irradiation Embrittlement of Cast Austenitic Stainless Steel (CASS) Program as described in LRA Section B.1.29.	March 21, 2012	BVY 06-009	B.1.29
26	Procedures will be enhanced to flush the John Deere Diesel Generator cooling water system and replace the coolant and coolant conditioner every three years.	March 21, 2012	BVY 06-009	B.1.30.1/Audit Items 84 & 164

**VERMONT YANKEE NUCLEAR POWER STATION
LICENSE RENEWAL COMMITMENT LIST
REVISION 0**

ITEM	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	Related LRA Section No./ Comments
27	<p>For each location that may exceed a CUF of 1.0 when considering environmental effects, VYNPS will implement one or more of the following:</p> <p>(1) further refinement of the fatigue analyses to lower the predicted CUFs to less than 1.0;</p> <p>(2) management of fatigue at the affected locations by an inspection program that has been reviewed and approved by the NRC (e.g., periodic non-destructive examination of the affected locations at inspection intervals to be determined by a method acceptable to the NRC);</p> <p>(3) repair or replacement of the affected locations.</p> <p>Should VYNPS select the option to manage environmental-assisted fatigue during the period of extended operation, details of the aging management program such as scope, qualification, method, and frequency will be provided to the NRC prior to the period of extended operation.</p>	<p>March 21, 2012</p> <p>March 21, 2010 for performing a fatigue analysis that addresses the effects of reactor coolant environment on fatigue (in accordance with an NRC approved version of the ASME Code)</p>	BVY-06-058	4.3.3/ Audit Items 29, 107 & 318
28	Revise program procedures to indicate that the Instrument Air Program will maintain instrument air quality in accordance with ISA S7.3	March 21, 2012	BVY 06-009	B.1.16/Audit Item 47
29	VYNPS will either install core plate wedges or complete a plant-specific analysis to determine acceptance criteria for continued inspection of core plate hold down bolting in accordance with BWRVIP-25.	March 21, 2012	BVY 06-009	B.1.7/ Audit Item 9
30	Revise System Walkdown Program to specify CO2 system inspections every 6 months.	March 21, 2012	BVY 06-009	B.1.28/ Audit Items 30, 141, 146 & 298
31	Revise Fire Water System Program to specify annual fire hydrant gasket inspections and flow tests.	March 21, 2012	BVY 06-009	B.1.12.2/ Audit Items 39 & 40
32	Implement the Metal Enclosed Bus Program. (Details to be provided in a LRA Amendment)	March 21, 2012	BVY 06-058	Audit Item 97
33	Enhance the Structures Monitoring Program to ensure an engineering evaluation is made on a periodic basis of groundwater samples to assess aggressiveness of groundwater to concrete.	March 21, 2012	BVY 06-009	B.1.27/ Audit Item 77

**VERMONT YANKEE NUCLEAR POWER STATION
 LICENSE RENEWAL COMMITMENT LIST
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ITEM	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	Related LRA Section No./ Comments
34	Implement the Bolting Integrity Program. (Details to be provided in a LRA Amendment)	March 21, 2012	BVY 06-058	Audit Items 198, 216, 218, 237, 331 & 333
35	Enhance the System Walkdown Training Program as appropriate to document biennial refresher training of Engineers to demonstrate inclusion of the methodology for aging management of plant equipment as described in EPRI Aging Assessment Field Guide or comparable instructional guide.	March 21, 2012	BVY 06-058	Audit Item 384
36	If technology to inspect the hidden jet pump thermal sleeve and core spray thermal sleeve welds has not been developed and approved by the NRC at least two years prior to the period of extended operation, VYNPS will initiate plant-specific action to resolve this issue. That plant specific action may be justification that the welds do not require inspection.	March 21, 2010	BVY-06-058	Audit Item 12

ATTACHMENT 3

October 25, 2007

LICENSEE: Entergy Nuclear Operations, Inc.

FACILITY: Vermont Yankee Nuclear Power Station

SUBJECT: SUMMARY OF TELEPHONE CONFERENCE CALL HELD ON AUGUST 20, 2007,
BETWEEN THE U.S. NUCLEAR REGULATORY COMMISSION AND ENTERGY
NUCLEAR OPERATIONS, INC., CONCERNING THE VERMONT YANKEE
NUCLEAR POWER STATION LICENSE RENEWAL APPLICATION

The U.S. Nuclear Regulatory Commission (NRC or the staff) and representatives of Entergy Nuclear Operations, Inc. held a telephone conference call on August 20, 2007, to discuss the regulatory requirements stated in 10 CFR Part 54.21(c)(1) as it relates to the Vermont Yankee Nuclear Power Station license renewal application.

Enclosure 1 provides a listing of the participants and Enclosure 2 contains a summary of the issue discussed with the applicant.

The applicant had an opportunity to comment on this summary.

/RA/

Jonathan G. Rowley, Project Manager
License Renewal Branch B
Division of License Renewal
Office of Nuclear Reactor Regulation

Docket No. 50-271

Enclosures:

1. List of Participants
2. Summary of Discussion

cc w/encls: See next page

October 25, 2007

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The applicant had an opportunity to comment on this summary.

/RA/

Jonathan G. Rowley, Project Manager
License Renewal Branch B
Division of License Renewal
Office of Nuclear Reactor Regulation

Docket No. 50-271

Enclosures:

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**TELEPHONE CONFERENCE CALL
VERMONT YANKEE NUCLEAR POWER STATION
LICENSE RENEWAL APPLICATION**

**LIST OF PARTICIPANTS
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**OPEN ITEMS
VERMONT YANKEE NUCLEAR POWER STATION
LICENSE RENEWAL SAFETY EVALUATION REPORT**

AUGUST 20, 2007

The U.S. Nuclear Regulatory Commission (NRC or the staff) and representatives of Entergy Nuclear Operations, Inc. held a telephone conference call on August 20, 2007, to discuss the regulatory requirements stated in 10 CFR 54.21(c)(1) as it relates to the Vermont Yankee Nuclear Power Station (VYNPS) license renewal application (LRA).

Discussion summary: It is the NRC position that in order to meet the requirements of 10 CFR 54.21(c)(1), an applicant for license renewal must demonstrate in the LRA that the evaluation of the time-limited aging analyses (TLAA) has been completed. The NRC does not accept a commitment to complete the evaluation of the TLAA prior to entering the period of extended operation.

Fatigue analyses based on a set of design transients and on the life of the plant are treated as TLAAs. The applicant made a commitment (license renewal Commitment #27) to address environmentally assisted fatigue by refining fatigue analyses to include the effects of reactor water environment to verify that the cumulative usage factors are less than 1.0. The NRC could not accept this commitment.

Based on the discussion, the applicant agreed to amend its LRA to demonstrate that the evaluation of the TLAA has been completed. The NRC's review of this TLAA evaluation will be documented in the final VYNPS safety evaluation report.

Letter to Entergy Nuclear Operations, Inc., from J. Rowley dated October 25, 2007

SUBJECT: SUMMARY OF TELEPHONE CONFERENCE CALL HELD ON
AUGUST 20, 2007, BETWEEN THE U.S. NUCLEAR REGULATORY
COMMISSION AND ENTERGY NUCLEAR OPERATIONS, INC., CONCERNING
THE VERMONT YANKEE NUCLEAR POWER STATION LICENSE RENEWAL
APPLICATION

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CERTIFICATE OF SERVICE

I certify that on May 1, 2008, copies of the foregoing Riverkeeper, Inc.'s Reply to Entergy's and the NRC Staff's Oppositions to Request for Admission of Amended Contention TC-1 were served on the following by e-mail and first-class mail:

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