

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Commission

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

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

OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

**ENTERGY'S ANSWER IN SUPPORT OF NRC STAFF'S PETITION FOR REVIEW OF
THE LICENSING BOARD'S PARTIAL INITIAL DECISION, LBP-08-25**

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INTRODUCTION

Pursuant to 10 C.F.R. § 2.341(b)(3), Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc. (collectively "Entergy") hereby submit their answer in support of the NRC Staff's petition for review ("Petition")¹ of the portion of the Atomic Safety Licensing Board ("Board")'s Partial Initial Decision ("Decision") in the above-captioned proceeding that keeps the record open and extends this proceeding until Entergy submits two environmentally-assisted fatigue calculations – following the very same methodology that the Board found acceptable – and any new challenges to these calculations are resolved.² The NRC Staff's Petition should be granted because the Board's decision requiring further calculations was based on three clearly erroneous findings of law or fact: (1) that environmentally assisted fatigue is a time-limited aging analysis to which 10 C.F.R. § 54.21(c)(1)(ii) applies; (2) that Entergy is not addressing environmentally assisted fatigue through an aging management program; and (3) that an aging management program may not include calculations. Each of these erroneous

¹ NRC Staff's Petition for Review of the Licensing Board's Partial Initial Decision, LBP-08-25 (Dec. 9, 2008).

² Partial Initial Decision (Ruling on Contentions 2A, 2B, 3 and 4), LBP-08-25, 68 N.R.C. ____, slip op. (Nov. 24, 2008) ("LBP-08-25" or "Decision").

conclusions was material and necessary for the Board to reach its mistaken ruling that additional calculations are required prior to issuance of the renewed license. Commission review is further warranted because the Board's erroneous conclusions raise novel, substantial questions of law and policy that could affect pending and future license renewal proceedings.³ The Decision's determinations regarding the application of 10 C.F.R. §§ 54.3, 54.21(c)(1) and 54.29 would effectively render the provisions of 10 C.F.R. § 54.21(c)(1)(iii) superfluous.

This proceeding involves a license renewal applicant that has committed to an aging management program for environmentally assisted fatigue that is consistent in all respects with the NRC's Generic Aging Lessons Learned ("GALL" Report),⁴ and that further has presented calculations performed under that program in order to resolve any dispute regarding the underlying methodology. The Board's decision that two additional calculations must be submitted, and potentially litigated, raises substantial questions by conflicting with Commission holdings that, in evaluating license renewal programs, compliance with guidance documents like the GALL Report is entitled to special weight.

Entergy supports the NRC Staff's Petition and respectfully requests that the Commission reverse and vacate the portion of the Board's Decision that requires Entergy to undertake additional confirmatory calculations before the renewed license is issued. Further, because all other contentions were resolved in Entergy's favor, the Commission should authorize the NRC Staff to issue the renewed license without delay.

³ The Petition, and this response, address only the aspect of the Decision that keeps the record open until Entergy performs and submits additional environmentally assisted fatigue calculations. The Board rejected all other claims raised by intervenor the New England Coalition ("NEC") on Contentions 2A and 2B.

⁴ NUREG-1801, Generic Aging Lessons Learned (GALL) Report (Rev. 1, Sept. 2005).

STATEMENT OF THE CASE

On January 25, 2006, Entergy submitted its application for renewal of Operating License No. DPR-28 for the Vermont Yankee Nuclear Power Station (“VY”).⁵ On May 26, 2006, NEC submitted its request for hearing regarding the LRA.⁶

Contention 2, as propounded by NEC and admitted by the Board, asserts that “Entergy’s License Renewal Application does not include an adequate plan to monitor and manage the effects of aging [due to environmentally assisted metal fatigue (“EAF”)] on key reactor components that are subject to an aging management review, pursuant to 10 C.F.R. § 54.21(a) and an evaluation of time limited aging analysis, pursuant to 10 C.F.R. § 54.21(c).” Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc. (Vermont Yankee Nuclear Power Station), LBP-06-20, 64 N.R.C. 131, 183 (2006) (“LBP-06-20”) (footnote omitted). In proffering this contention, NEC had stated:

To satisfy Section 54.21(c)(1)(iii) . . . , Entergy states that it will implement one or more of the following:

- (1) further refinement of the fatigue analyses to lower the predicted CUFs to less than 1.0
- (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);
- (3) repair or replacement of the affected locations.

Intervention Petition at 15-16. NEC contended that Entergy’s proposal was too vague, and in particular, that its “proposal to further refine fatigue analysis to lower the predicted CUFs to less than 1.0 suggests that Entergy uses analytical techniques that lend themselves to arbitrary

⁵ Vermont Yankee Nuclear Power Station License Renewal Application (Jan. 25, 2006) (ADAMS Accession No. ML060300085) (“LRA”). Entergy subsequently supplemented and amended the LRA several times.

⁶ Petition for Leave to Intervene, Request for Hearing, and Contentions (May 26, 2006) (“Intervention Petition”).

adjustments.” Id. at 16. In admitting this contention, the Board recognized that Entergy was relying upon an aging management program under 10 C.F.R. § 54.21(c)(1)(iii). See LBP-06-20, 64 N.R.C. at 186.⁷

NEC’s contention challenges Entergy’s assessment of EAF effects on nine reactor component locations, which were chosen in accordance with NRC Staff guidance. The LRA provided a screening evaluation of EAF effects for all nine locations by determining cumulative usage factors (“CUFs”) at each location using generic values for certain components that had been designed under the ANSI B.31.1 Code, performing calculations of the environmentally adjusted cumulative usage factor “ CUF_{en} ” at each location, and determining whether the projected CUF_{ens} for 60 years of plant operation remain less than unity. These screening calculations indicated that the CUF_{ens} at some of these locations could exceed the acceptance criterion (i.e., CUF_{en} less than unity), signifying that one of the actions under 10 C.F.R. § 54.21(c)(1)(iii) identified in the LRA’s aging management program would be required.

Entergy subsequently informed the Board that it was performing a reanalysis to recalculate the CUF_{ens} in order to address the shortcomings alleged by NEC in its Contention 2. See Order (June 18, 2007); see also, Memorandum and Order (Ruling on NEC Motions to File and Admit New Contention), LBP-07-15, 66 N.R.C. 261, 265 (2007) (“LBP-07-15”). Entergy performed the reanalysis, and provided final results of the reanalysis on August 2, 2007. LBP-07-15, 66 N.R.C. at 265.⁸ On September 17, 2007, Entergy amended its LRA to clarify that these refined analyses are part of its aging management program for fatigue. The amendment

⁷ As discussed more fully below, Entergy later amended its LRA to make its Fatigue Monitoring Program consistent in all respects with the GALL Report and to make clear that its EAF analyses are part of that program.

⁸ Entergy has often referred to its 2007 reanalysis as the “refined analysis.”

states: "The transients assumed in the refined fatigue analyses will be added to the [Fatigue Monitoring Program] and tracked to ensure ongoing validity of the inputs to the refined analyses." Staff Exh. 23, Att. 1. The amendment eliminated all exceptions to Section X.M1 of the GALL Report, which establishes an acceptable aging management program for Metal Fatigue of the Reactor Coolant Pressure Boundary. Id.

NEC moved to file a new or amended contention, claiming that Entergy's refined analysis was flawed. In LBP-07-15, the Board admitted a new NEC contention (NEC 2A) alleging that the "analytical methods employed in Entergy's [environmentally corrected CUF or] CUFen Reanalysis were flawed by numerous uncertainties, unjustified assumptions, and insufficient conservatism, and produced unrealistically optimistic results. Entergy has not, by this flawed reanalysis, demonstrated that the reactor components assessed will not fail due to metal fatigue during the period of extended operation." LBP-07-15, 66 N.R.C. at 270. The Board ordered that the parties litigate NEC's new contention, holding NEC Contention 2 in abeyance. Id. at 271.

In response to requests for additional information from the NRC Staff, Entergy performed additional, confirmatory analyses of the CUF_{en}s for two locations at the feedwater nozzle, using a different methodology than that employed in the refined analyses.⁹ In its SER, which was entered into evidence at the hearing (see Decision at 15, n.36), the Staff found that the confirmatory analyses of the feedwater nozzle were performed appropriately and yielded

⁹ The confirmatory analysis was performed in response to NRC Staff concerns that the methodology used for the feedwater nozzle, core spray nozzle, and reactor recirculation nozzle might be non-conservative. LBP-08-25 at 50. The feedwater nozzle was selected for this confirmatory analysis because Entergy and the NRC Staff had agreed that (1) it is the limiting nozzle (i.e., has the highest CUFen) among the three nozzles regarding which the Staff had questions; (2) it is subjected to more transients and cycles than the other two nozzles; and (3) the transients it experiences are more severe than the transients experienced by the other two nozzles. Staff Safety Evaluation Report ("SER"), § 4.3.3.2 at 4-40 - 4-41.

acceptable results in that the calculated CUF_{en} values are less than unity. The Staff, however, required that Entergy perform similar confirmatory analyses for two other components, the core spray and reactor recirculation nozzles. The Staff determined that those two confirmatory analyses could be performed after renewal of the VY license was granted, as long as they were submitted for Staff review two years before the start of the period of extended operation. See Decision at 16-17.

On March 17, 2008, NEC moved to file a new or amended contention challenging the confirmatory analyses of the feedwater nozzle. On April 24, 2008, the Board admitted a new contention based on NEC's March 17 motion. The Board found the new contention to be "a subset of NEC Contention 2A" and designated it as NEC Contention 2B. April 24, 2008 Order at 2.

The evidentiary hearing on the NEC contentions was held in Newfane, Vermont, on July 21 through 24, 2008. The hearing, which was conducted under the procedures of Subpart L of 10 C.F.R. Part 2, included incorporation into the record of the direct and rebuttal testimony and the admission into evidence of numerous exhibits proffered by each party.

On November 24, 2008, the Board issued its Decision. The Decision rejected all challenges raised by NEC with respect to Contentions 2A and 2B. Decision at 33-57. The Board also determined that Entergy's confirmatory CUF_{en} analyses for the feedwater nozzle are satisfactory and comply with the regulatory requirements. Decision at 54. The Board, however, ruled that confirmatory CUF_{en} analyses for the core spray and reactor recirculation nozzles must be performed before a renewed license can be issued. Decision at 55, 151. Thus, the Board ruled that the performance of the confirmatory analysis of those nozzles with satisfactory results

constitutes a condition precedent to the granting of the renewed license. Moreover, the Board ruled that the record of the proceeding “will be held open with regards to Contentions 2A and 2B, and Contention 2 will be held in abeyance” until 45 days after Entergy completes the confirmatory CUF_{en} analyses on the core spray and reactor recirculation nozzles with satisfactory results and “makes those analyses available for review by the NRC Staff and the other parties herein.”¹⁰ Decision at 151-52.

The NRC Staff filed its Petition on December 9, 2008, asserting that the Decision: (1) raises substantial legal questions with regard to the proper interpretation and application of 10 C.F.R. §§ 54.3, 54.21(c)(1), and 54.29; (2) makes a number of findings regarding the contents of VY’s LRA that are erroneous and not supported by the record; and (3) errs in finding that the use of an aging management program consistent with the GALL Report does not satisfy the Commission’s regulations. The NRC Staff’s Petition argues that the Commission should review the Board’s Decision because it raises important questions of policy, is a clear departure from Commission precedent, and involves novel determinations whose review is in the public interest due to their potential impact on pending and future license renewal applications. Entergy supports the NRC Staff’s Petition for the reasons set forth below.

¹⁰ There is an apparent inconsistency in LBP-08-25 regarding whether the forty-five day period cited by the Board runs from the date Entergy provides to the other parties its confirmatory analyses of the two nozzles or whether it runs from the date the Staff approves those calculations. Compare Decision at 67-68 with Decision at 151-52. Entergy has filed a motion for clarification of this discrepancy. Entergy’s Motion for Clarification (Dec. 4, 2008).

ARGUMENT

I. LEGAL STANDARDS GOVERNING THE GRANTING OF PETITIONS FOR REVIEW

The Commission's regulations provide for Commission review of partial initial decisions giving due weight to the existence of a substantial question with respect to the following considerations:

- (i) A finding of material fact is clearly erroneous or in conflict with a finding as to the same fact in a different proceeding;
- (ii) A necessary legal conclusion is without governing precedent or is a departure from or contrary to established law;
- (iii) A substantial and important question of law, policy, or discretion has been raised;
- (iv) The conduct of the proceeding involved a prejudicial procedural error; or
- (v) Any other consideration which the Commission may deem to be in the public interest.

10 C.F.R. § 2.341(b)(4). In determining whether to grant petitions for review, the Commission has examined several factors, including whether the matter: (1) includes "a legal issue that is essential to a broad spectrum of Commission licensing decisions;" (2) raises a question of proper interpretation of the Commission's regulations; and (3) involves situations where the Commission "has not had the opportunity to rule on the precise issue presented."¹¹ The Commission reviews legal or policy questions de novo.¹²

¹¹ See Hydro Resources, Inc. (P.O. Box 777, Crownpoint, New Mexico 87313), CLI-06-7, 63 N.R.C. 165, 166 (2006).

¹² Private Fuel Storage, L.L.C. (Independent Spent Fuel Storage Installation), CLI-00-13, 52 N.R.C. 23, 29 (2000) (citing Sequoyah Fuels Corp. & Gen. Atomics (Gore, Oklahoma Site), CLI-97-13, 46 N.R.C. 195, 206 (1997)).

II. THE COMMISSION SHOULD GRANT THE NRC STAFF'S PETITION FOR REVIEW AND REVERSE THE BOARD WITH RESPECT TO THE CHALLENGED ASPECTS OF THE BOARD'S DECISION

The issues raised by and the errors in the Board's Decision with respect to Contentions 2, 2A and 2B meet the Commission's legal standards for granting a petition for review under 10 C.F.R. § 2.341(b)(4) because: (1) the Board's finding that Entergy is not addressing environmentally assisted fatigue through an aging management program is a clear and material error of fact; (2) the Board's legal conclusions that environmentally assisted fatigue analysis is a time-limited aging analysis ("TLAA"), and that aging management programs may not include calculations, are clear departures from established law, precedents and policy; and (3) the Board's decision raises substantial and important questions of law and policy concerning the standards for license renewal. The Board's Decision not only extends this proceeding materially and unnecessarily, depriving Entergy of a timely resolution of its LRA, but also effectively rejects the aging management program found acceptable in the GALL Report, and writes 10 C.F.R. § 54.21(c)(1)(iii) out of existence.

A. THE DECISION ERRED IN TREATING ENVIRONMENTALLY ASSISTED FATIGUE AS A TIME-LIMITED AGING ANALYSIS

The Board's decision requiring additional environmentally assisted fatigue (CUF_{en}) calculations is predicated on the clearly erroneous legal conclusion that such calculations are TLAA's. Finding that the CUF_{en} calculations constitute TLAA's requires that these calculations be subject exclusively to the provisions of 10 C.F.R. § 54.21(c)(1)(ii) – and thus that the analyses be projected to the end of the period of extended plant operation in the LRA and shown to be acceptable before the LRA can be approved. Decision at 64-66. The Board appears to acknowledge, as it must, that VY's current licensing basis prior to submittal of the LRA did not

include CUF_{en} calculations.¹³ Decision at 65. The Board, however, interprets TLAAAs as “evolving” and suggests that they include not only analyses embedded in the applicant’s licensing basis but additional analyses “that current science and NRC policy (GSI-190 Memo) have determined are clearly necessary to accurately assess whether a component is likely to fail due to metal fatigue during the [period of extended operations] PEO.” *Id.* at 65.

Under the Board’s reasoning, if a new calculation is deemed “necessary” as part of a license renewal application according to “current science” or NRC policy, the calculation becomes a TLAA even though it is found nowhere in the plant’s current licensing basis (“CLB”) and does not involve time-limited assumptions defined by the current operating term. The Board’s reasoning is inconsistent with the clear language of the NRC regulations. TLAAAs are defined in Section 54.3 as 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.

¹³ CUF_{en} calculations were not required as part of the initial licensing of VY and, in fact, the resolution of Generic Safety Issue GSI-190 issue made it clear that currently licensed plants are not required to perform such calculations, which were recommended only for plants seeking renewal of their licenses. Memorandum from A. Thadani to W. Travers, “Closeout of Generic Safety Issue 190, ‘Fatigue Evaluation of Metal Components for 60-Year Plant Life’” (Dec. 26, 1999), (“GSI-190 Memo”), Attachment 1 at 4, 5. The GSI-190 Memo was introduced into evidence at the hearing. *See* Decision at 26.

10 C.F.R. § 54.3. As items (3) and (6) make clear, TLAAAs are existing analyses that involve time-limited assumptions defined by the current operating term and are part of a plant's CLB. Contrary to the Board's holding, EAF is not a TLAA, but rather an aging issue that is addressed as part of the Fatigue Monitoring Program described in the VY license renewal application.

The Board lacks a regulatory basis to redefine a plant's CLB to incorporate by implication new analyses or requirements not specifically required by regulation or adopted in amendments to the operating license. Such a redefinition would render the CLB indeterminate because the issue of which analyses are included in the CLB due to "current science" or NRC guidance would be open to interpretation.¹⁴ The CUF_{en} analyses performed at VY are new evaluations, not in existence prior to the submittal of evidence in this proceeding. There are no existing TLAAAs with respect to EAF that can be "projected to the end of the period of extended operation," as called for in 10 C.F.R. § 54.21(c)(1)(ii). Therefore, the regulations governing TLAAAs did not require Entergy to evaluate calculations demonstrating that CUF_{en} would not exceed unity during the period of extended operation.¹⁵

Rather than being a TLAA, environmentally assisted fatigue is an aging mechanism that is addressed in an applicant's program for managing the effects of fatigue pursuant to the resolution of generic safety issue GSI-190, which was closed out after the license renewal rule was promulgated. In promulgating the license renewal rule, the Commission indicated that

¹⁴ VY has never amended its current license to incorporate the performance of CUF_{en} analysis as part of the CLB. Those analyses are being performed as part of an aging management program to be implemented after the VY license is renewed.

¹⁵ The Board's argument that, even though the Fens may not be part of the TLAAAs, the CUFs are and they are defective (Decision at 65) is incorrect. The CUFs that Entergy recalculated as part of its environmental fatigue analysis are part and parcel of the new CUF_{en} calculations. The results of the required evaluation of fatigue TLAAAs to demonstrate that CUFs will remain below unity are presented in Table 4.3.1 of the LRA, and are independent of the subsequent analyses used to address the environmental effects.

designation of an issue as a GSI would not exclude the issue from the scope of the aging management review or time-limited aging analysis evaluation. 60 Fed. Reg. 22461, 22,484 (May 8, 1995). The Commission identified several options for addressing such an issue, including “develop[ing] an aging management program which, for that plant, incorporates resolution of the aging effects issue.” *Id.* at 22,485.

Subsequently, when the NRC Staff closed out GSI-190, it stated:

The results of the probabilistic analyses, along with the sensitivity studies performed, the interactions with the industry (NEI and EPRI), and the different approaches available to the licensees to manage the effects of aging, lead to the conclusion that no generic regulatory action is required, and that GSI-190 is resolved. This conclusion is based primarily on the negligible calculated increases in CDF in going from 40 years to 60 year lives. However, the calculations supporting resolution of this issue, which included consideration of environmental effects, and the nature of age-related degradation indicate the potential for an increase in the frequency of pipe leaks as plants continue to operate. Thus, the staff concludes that, consistent with existing requirements in 10 CFR 54.21, licensees should address the effects of the coolant environment on component fatigue life as aging management programs are formulated in support of license renewal.

GSI-190 Memo, Attachment 1 at 5 (emphasis added). Thus, environmentally assisted fatigue is an aging phenomenon whose effects, according to the NRC’s assessment, should be addressed by an AMP.

B. THE DECISION ERRED IN CONCLUDING THAT ENTERGY IS NOT IMPLEMENTING AN AMP

Having concluded that CUF_{en} calculations are TLAAAs, the Board then further erred in finding that Entergy had performed the CUF_{en} calculations as TLAAAs in order to eliminate the need for an aging management program. Decision at 58-60. The Decision erroneously charges Entergy with “re-label[ing] its TLAA as an AMP” and holds that “[t]he Board rejects the

proposition that compliance can be achieved by re-packaging and postponing a TLAA analysis-of-record and calling it an AMP.”¹⁶ Decision at 59.

Contrary to the Board’s Decision and as the record clearly shows, Entergy’s LRA explicitly includes a “Fatigue Monitoring Program.” LRA, § B.1.11. LRA Amendment 31 eliminated the exceptions that were originally identified in Section B.1.11, making the VY Fatigue Management Program completely consistent in all respects with Section X.M1 of the GALL Report.¹⁷

As stated in Section X.M1 of the GALL Report, this aging management program goes beyond performing CUF_{en} calculations. It “monitors and tracks the number of critical thermal and pressure transients for the reactor coolant system components.” GALL Report at X.M-1. The program provides for corrective action to prevent the usage factor from exceeding the design code limit during the period of extended operation *Id.* Under the program, “[a]cceptable 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 period of extended operation.” *Id.* at X.M-2. This program explicitly encompasses the effects of environmentally assisted fatigue. As stated in the GALL Report, “The AMP 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.” *Id.* at X.M-1. VY’s EAF aging monitoring program includes all these elements

¹⁶ 10 C.F.R. § 54.21(c) does not require the performance of TLAAAs but only their evaluation. Under subsection (c)(1)(ii), that evaluation is to demonstrate that existing TLAAAs “have been projected to the end of the period of extended operation.”

¹⁷ Section X.M-1 of the GALL Report was introduced into evidence and discussed by the Board at various points in its Decision. See, e.g., Decision at 24.

called for in the GALL Report. The Decision ignores these programmatic elements, which were addressed in the exhibits and testimony presented at the hearing.

Similarly, the NRC's SER specifically discusses Entergy's Fatigue Monitoring Program in the AMP section of the SER (SER at 3-72 to 3-75) and explicitly states this program includes an assessment of the impact of reactor water environment on critical components. The Board is thus incorrect in finding that the Staff never discussed metal fatigue CUF_{en} in the AMP section of the SER. Decision at 60. For the same reason, the Decision is incorrect in concluding that Entergy's commitment to perform refined CUF_{en} calculations as part of an AMP is inconsistent with the SER. See id. Indeed, the Staff's SER specifically discusses Entergy's September 17, 2007 amendment to the LRA, including the commitment to include and track the refined fatigue analyses in the Fatigue Monitoring Program. SER at 4-38.

Moreover, in admitting the original contention, the Board acknowledged that Entergy was relying on an aging management program under 10 C.F.R. § 54.21(c)(1)(iii). LBP-06-20, 64 N.R.C. at 186. NEC's contention itself challenged the sufficiency of that program – and, in particular, whether the corrective actions in the program were specified with sufficient detail. Entergy therefore performed revised calculations so that any issues regarding the methodology to be applied under this program would be resolved. Entergy has never disclaimed its aging management program, and the Board's conclusion that Entergy was submitting a TLAA to avoid an AMP has no support in the record.

C. THE DECISION ERRED IN CONCLUDING THAT AN AMP MAY NOT INCLUDE CALCULATIONS

The Board also erred in concluding that an AMP may not include a commitment to perform CUF_{en} calculations. See Decision at 59-63. Entergy was fully justified in addressing

the EAF CUF_{en} calculations as part of its AMP for VY. Such an option is allowed by 10 C.F.R. § 54.21(c)(1), which requires that a license renewal application demonstrate that any one of three conditions is met with respect to component aging analyses:

- (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.

10 C.F.R. § 54.21(c)(1). In promulgating the license renewal rules, the Commission explained the three options under 10 C.F.R. § 54.21(c)(1) as requiring the application to:

- (1) Justify that these analyses are valid for the period of extended operation;
- (2) Extend the period of evaluation of the analyses such that they are valid for the period of extended operation, for example, 60 years; or
- (3) Justify that the effects of aging will be adequately managed for the period of extended operation if an applicant cannot or chooses not to justify or extend an existing time-limited aging analysis.

60 Fed. Reg. at 22,480 (emphasis added). The Commission thus emphasized that 10 C.F.R. § 54.21(c)(1) allows an applicant to choose among three methods, each of which is an independent means of assessing the effects of component aging. Entergy chose the method of 10 C.F.R. § 54.21(c)(1)(iii) with respect to EAF of critical reactor components.

The Board's refusal to allow calculations as part of an AMP constitutes clear error, as discussed further below.

1. The Board Erred in Failing to Acknowledge that Calculations can be Part of an AMP

The Decision erroneously concludes that calculations cannot be part of an AMP under 10 C.F.R. § 54.21(c)(1)(iii) because:

such an interpretation would collapse 10 C.F.R. § 54.21(c)(1)(ii) into subsection (iii), subsuming the former into the latter. If an applicant could demonstrate compliance now by promising to demonstrate compliance later (i.e., satisfy the TLAA analysis-of-record requirement by agreeing to perform it later), there would be no reason or incentive for an applicant to perform the TLAA now. Indeed, there would be many reasons (e.g., costs, avoidance of the hearing process) to postpone the TLAA demonstration until later. The new interpretation promoted by Entergy and endorsed by the Staff would render 10 C.F.R. § 54.21(c)(1)(ii) superfluous, thus violating a cardinal rule of statutory and regulatory interpretation.

Decision at 59-60 (emphasis omitted) (footnote omitted).

Contrary to the Decision, however, including calculations as part of an AMP would not render 10 C.F.R. § 54.21(c)(1)(ii) superfluous. Should an applicant have existing calculations that are part of the CLB and that can be extended to cover the period of renewed license operations, redoing such calculations for a longer period of time, evaluating the results, and demonstrating their continued validity would be an effective use of the option provided by 10 C.F.R. § 54.21(c)(1)(ii). On the other hand, not allowing new calculations to be part of an AMP under 10 C.F.R. § 54.21(c)(1)(iii) would eliminate one of the applicant's options in conducting AMPs pursuant to 10 C.F.R. § 54.21(c)(1)(iii). To do so would be contrary to the Commission's purposes in promulgating 10 C.F.R. § 54.21(c)(1).

The Board's conclusion also presupposes that redoing the calculations is the only action under the AMP, and thus fails to recognize that the Fatigue Monitoring Program in the VY LRA includes tracking transients to ensure that the transient number assumptions in the fatigue analyses remain valid. Indeed, the Board appears to concede that calculations may be performed as part of an aging management program if they are "tracking" calculations rather than

“predictive TLAAs” that “establish[] that an AMP is not required.” Decision at 61. Here, the LRA clearly includes a tracking program and in no manner seeks to avoid an AMP.¹⁸

2. AMPs May Include Commitments to Perform Calculations in the Future

Nor does 10 C.F.R. § 54.29(a) preclude an AMP from including a commitment to perform calculations in the future, as the Board suggests. Decision at 61. That regulation, “Standards for Issuance of a Renewed License,” provides in relevant part that a renewed license may be issued if: “[a]ctions have been identified and have been or will be taken with respect to [time-limited aging analyses that have been identified to require review under § 54.21(c)] such that there is reasonable assurance that the activities authorized by the renewed license will continue to be conducted in accordance with the CLB. . . .” 10 C.F.R. § 54.29(a), emphasis added. By its own express terms, this rule does not require that such actions be completed prior to the issuance of the renewed license.

Rather, in promulgating the license renewal rule (56 Fed. Reg. 64,943) (Dec. 13, 1991), the Commission accepted the use of new commitments to monitor, manage, and correct age-related degradation unique to license renewal. The Commission stated:

The licensing basis for a nuclear power plant during the renewal term will consist of the current licensing basis and new commitments to monitor, manage, and correct age-related degradation unique to license renewal, as appropriate. The

¹⁸ Entergy addressed this very point in response to questions from the Board prior to the hearing:

Entergy’s commitment to monitor fatigue by tracking transient cycles and taking corrective action if a CUF of 1 is exceeded unity will continue regardless of the outcome of the refined and confirmatory analyses. NEC’s and DPS’ assertions that the analysis must be completed to determine whether a license renewal is appropriate demonstrate their misunderstanding of the role of the analysis in the aging management program. The results of the analysis will not be determinative of whether a license renewal should be granted, but what further actions will be taken to adequately manage aging. As discussed above, refined calculations are one of three corrective action options to prevent the usage factor from exceeding the code design limit that are part of Entergy’s 10 C.F.R. § 54.21(c)(1)(iii) aging management program. See also, Gall Report at X M-1 to X M-2. The aging management program, contrary to NEC’s assertion, is never suspended, but continues through the period of extended operations regardless of the results of the analyses.

Entergy’s Reply to Responses to Licensing Board’s Questions (July 15, 2008) at 4.

current licensing basis includes all applicable NRC requirements and licensee commitments, as defined in the rule.

56 Fed. Reg. at 64,946. In 1995, the Commission again stated that commitments are acceptable:

In addition, the Commission concludes that, for the license renewal review, consideration of written commitments only need encompass those commitments that concern the capability of systems, structures, and components, identified in §54.21(a), integrated plant assessment and §54.21(c) time-limited aging analyses, to perform their intended functions, as delineated in § 54.4(b).

60 Fed. Reg. at 22,473. Thus, 10 C.F.R. § 54.29 is fully consistent with the Commission's statements accepting commitments as licensing basis for a renewed license. 56 Fed. Reg. at 64,946.

Moreover, the Commission has expressly held that an applicant can demonstrate that the effects of aging will be adequately managed by "commit[ing] to an aging management program." AmerGen Energy Co., LLC (Oyster Creek Nuclear Generating Station), CLI-08-28, 68 NRC ____, slip op. at 7 n.24 (Nov. 6, 2008).

3. The Methodology for the Calculations that the VY AMP Commits to Perform has been Litigated in this Proceeding and Accepted by the Board

In addition, contrary to the Board's reasoning,¹⁹ reliance upon applicant commitments does not deny public review or frustrate public scrutiny. No matter which of the approaches permitted by 10 C.F.R. § 54.21(c)(1) an applicant follows, a member of the public may contend that the selected approach fails to provide reasonable assurance that activities authorized by the renewed license will continue to be conducted in accordance with the current licensing basis. The license commitment in VY's Amendment 35 to the LRA specifies the kind of analysis to be conducted, how it will be conducted, and what other kinds of corrective action may be taken. If

¹⁹ The Board held that to allow an applicant to postpone the performance of the necessary "analysis-of-record" would "violate the intervenor's right under Section 189(a) of the Atomic Energy Act to have a hearing on an issue material to the licensing decision." Decision at 57 (footnote omitted).

any petitioner believes that the analysis or how it is conducted is not sufficient, they have the opportunity to challenge the use of the analysis as part of the aging management program and litigate that challenge in the license renewal proceeding, as NEC has done here. If the applicant's analysis is found to be an adequate part of the aging management program, the fact that the analysis will be conducted after the license is renewed is immaterial. If the analysis is an adequate part of the aging management program, there will be no outstanding safety issues left to be resolved.²⁰

In performing the confirmatory analyses of the feedwater nozzle prior to the hearing in this proceeding, Entergy ensured that the methodology would be clearly known, so that the details of the analysis could be addressed at the hearing. The fact that Entergy performed such analyses, received NRC Staff approval, and had the analyses upheld by the Board after a hearing suffices to assure the adequacy of the methodology and renders the approach acceptable for use in future analyses.

4. The Board Erred in Failing to Give Appropriate Weight to VY's AMP As Fully Consistent with the GALL Report

The Board's conclusions are furthermore inconsistent with the GALL Report, which explicitly allows more rigorous analysis as one of the corrective actions in an aging management program for Metal Fatigue of Reactor Coolant Pressure Boundary. GALL Report at X.M-1. Indeed, other aging management programs sanctioned by the NRC also include provisions for performing calculations. See, e.g., GALL Report, §§ X.S1 (Concrete Containment Tendon Prestress), X.E1 (Environmental Qualification (EQ) of Electric Components), XI.M31 (Reactor Vessel Surveillance).

²⁰ Should any person believe that the analyses, once they are conducted, do not comply with the licensing commitments, that person has the ability to raise the issue of compliance with a license commitment through a 10 C.F.R. § 2.206 petition.

The Board's interpretation of the options available under 10 C.F.R. § 54.21 (c)(1)(iii) is thus contrary to the guidance in the GALL Report. Compliance with NRC guidance is substantial evidence of compliance with the NRC's regulatory requirements. Guidance documents, such as the GALL Report, NUREGs or the Standard Review Plan, do not have the force of legally binding regulations. Private Fuel Storage, L.L.C. (Independent Spent Fuel Storage Installation), CLI-01-22, 54 N.R.C. 255, 264 (2001). However, where the NRC has developed guidance documents assisting in compliance with applicable regulations, they are entitled to special weight. Id. Such deference is particularly appropriate with respect to the GALL Report because it was developed at the Commission's direction with considerable public involvement and its issuance was approved by the Commission. Indeed, the procedures used in developing the GALL Report were essentially the same as those typically employed in rulemaking proceedings.

a. The GALL Report Was Developed to Credit Existing Programs for License Renewal that Were Demonstrated to be Effective

The NRC Staff developed the GALL Report at the direction of the Commission to provide a basis for evaluating the adequacy of aging management programs for license renewal. See GALL Report at 1, 4. See also Memorandum from A Vietti-Cook to W. Travers, "Staff Requirements - SECY-99-148 - Credit for Existing Programs for License Renewal" (Aug. 27, 1999). In this Staff Requirements Memorandum ("SRM"), the Commission approved the Staff's recommendation to focus Staff review guidance in the standard review plan on areas where existing programs should be augmented, as described in SECY-99-148, to provide credit for existing programs for license renewal. The option that the Commission approved stated:

The staff is engaged in an effort called "Generic Aging Lessons Learned (GALL)," which evaluates existing programs generically to document the basis for determining when existing programs are adequate and when existing programs

should be augmented for license renewal. The staff plans to reference the GALL report in the standard review plan for license renewal as a basis for determining the adequacy of existing programs. The staff will present review guidance in the standard review plan for license renewal to focus its review on the areas where existing programs should be augmented. Applicants would submit information on specific existing programs that are relied on to manage certain aging effects for particular structures and components and would reference the GALL report as basis for program adequacy. The staff would follow the guidance in the standard review plan for license renewal to verify that the applicants have identified the appropriate existing programs. The main focus of the staff review would be on augmented programs for license renewal.

This option could be implemented with the existing license renewal rule. Under this option, the standard review plan for license renewal would need to provide sufficient technical detail and guidance to the staff to preclude any staff review of the existing programs. Improvements to the standard review plan for license renewal based on lessons learned would provide predictability and objectivity to the license renewal process. However, this option differs from the NEI's approach in that the staff would be identifying areas where existing programs should be augmented for license renewal. The Commission may also be criticized for granting renewed licenses based on generic information.

SECY-99-148 at 6-7. In approving this option, the Commission further stated:

The staff should proceed with the development of the Generic Aging Lessons Learned (GALL) report and the license renewal Standard Review Plan (SRP) and regulatory guide. The GALL report should receive the benefit of the experience from the staff members who conducted the review of the license renewal applications. The staff should ensure that lessons learned on the initial license renewal applications are incorporated in these documents and should provide them to the Commission for information when they are released for public comment. The staff should ensure that regulatory guidance is clear and understandable to stakeholders so that the license renewal process is stable and predictable for future applicants.

The staff should seek stakeholders' participation in the development of the GALL report, SRP, and regulatory guide and should inform the Commission of any significant issues that may arise from this process.

- a. When the GALL report and SRP are issued in draft for public comment, workshops should be held to bring all interested stakeholders up to date.
- b. Hold focused public meetings between the staff and stakeholders to resolve comments on individual issues.
- c. Hold a Commission briefing after the comment period and the staff's initial evaluation of the comments.

The final GALL report and final SRP should be submitted to the Commission for approval prior to publication.

SRM for SECY-99-148.

Consistent with these instructions from the Commission, the NRC Staff submitted the SRP and GALL Report to the Commission for approval in April 1991. SECY-01-0074, Memorandum from A. Travers to Commissioners, "Approval to Publish Generic License Renewal Guidance Documents" (Apr. 26, 2001). As reflected in SECY-01-0074, this generic guidance was developed with the assistance of the Office of Nuclear Regulatory Research, the Argonne and Brookhaven National Laboratories, and extensive public involvement. The NRC Staff further stated:

It is the staff's expectation that future license renewal applicants will realize resource savings in preparing their applications if they choose to use the GALL report and RG 1.188. Applying the GALL report will reduce the need to review plant-specific aging management programs. If applicants follow the guidance in RG 1.188, the format and content of their application will be similar to previous applications which provides for efficiencies for both parties because it provides a standard format and content for a license renewal application which will provide efficiencies for the applicant in preparing and the staff reviewing an application. In addition, when applicants state that their aging management programs are bounded by the GALL programs, the staff's review will shift from reviewing each program in detail to verifying the applicant's assertion. This will significantly reduce staff review resources and increase the efficiency of the review. The staff believes that the improved license renewal guidance documents will increase the stability and predictability of the license renewal review process because they describe the framework for a disciplined process that clearly articulates the evaluation criteria. They also provide a clear and sound technical basis to support the staff's conclusion that (1) actions have been identified and have been or will be taken with respect to managing the effects of aging during the period of extended operation for structures, systems, and components within the scope of the license renewal rule, (2) and that actions have been identified and have been or will be taken with respect to time-limited aging analysis that are required to be reviewed in accordance with the license renewal rule. These documents should also increase public confidence in the license renewal review process because the public was involved in developing them, and the public's comments were considered and incorporated, and because the documents will make the staff's license renewal reviews more predictable.

SECY-01-0074 at 4-5.

The Commission then approved the issuance of this guidance. Memorandum from A. Vietti-Cook to W. Travers, “Staff Requirements – SECY-01-0074 – Approval to Publish Generic License Renewal Guidance Documents (July 2, 2001). The Commission commended the staff for its outstanding efforts in developing these license renewal guidance documents, and stated: “These documents should serve to enhance the predictability, consistency, and efficiency of the NRC reviews of license renewal applications.” Id.

b. Controlling Law Provides that the GALL Report Must be Afforded Substantial Weight

The Commission has recently held that the use of an AMP consistent with the GALL Report constitutes reasonable assurance that the targeted aging effect will be adequately managed during the renewal period. AmerGen Energy Co., LLC (Oyster Creek Nuclear Generating Station), CLI-08-23, 68 N.R.C. ___ slip op. at 6 (Oct. 6, 2008).

Here, Entergy has committed to implement a Fatigue Monitoring Program that is consistent, with no exceptions, with the aging management program recommended by the GALL Report. Entergy has also presented and defended in the hearing its methodology for performing more rigorous fatigue calculations under this program. The Board’s failure to credit the guidance in the GALL Report is therefore contrary to Commission holdings and raises a substantial question of policy that may affect pending and future license renewal proceedings.²¹

²¹ The Board’s failure to find acceptable an AMP that is consistent with the guidance in the GALL Report is made explicit at a later point in the Decision, where the Board states:

We find that Entergy’s reference to NUREG-1801 is not sufficient by itself to meet 10 C.F.R. § 54.21. Specifically, an AMP which consists solely of the bald statements that it is: (1) “comparable to the program described in NUREG-1801,” (2) “consistent with the program described in NUREG-1801,” and (3) “based on EPRI Report NSAC-202L-R2 recommendations,” LRA at B-47, simply does not satisfy the requirement that an applicant actually “demonstrate” that its AMP will adequately manage aging during the PEO as required by 10 C.F.R. § 54.21(c)(1)(iii) or 54.21(a)(3). An unsupported declaration of compliance is not a demonstration of compliance.

D. THE BOARD'S DECISION RAISES SUBSTANTIAL QUESTIONS OF LAW AND POLICY WARRANTING COMMISSION REVIEW

The errors of fact and law discussed above raise substantial questions of law and policy warranting Commission review. Not only does the Board's decision extend this license renewal proceeding unnecessarily, depriving Entergy of a prompt resolution of its LRA, but it also establishes a precedent which, if not reversed, could adversely affect future license renewal proceedings. The Board's decision raises substantial questions concerning the interpretation of 10 C.F.R. §§ 54.21(c)(1) and 54.29. The Board's reasoning effectively eliminates 10 C.F.R. § 54.21(c)(1)(iii) as an option for addressing TLAAAs. Further, the Board's conclusion that an AMP may not include commitments to perform future calculations could serve as a basis for challenging many GALL programs. Finally, because Entergy has committed to a Fatigue Monitoring Program that is consistent with and takes no exception to the program specified in the GALL Report, the Board's conclusion that Entergy has not met the standards in the NRC rules raises a substantial question concerning the weight that should be assigned to an applicant's compliance with the GALL Report.

CONCLUSION

The Board's interpretations of 10 C.F.R. §§ 54.21(c)(1) and 54.29 are erroneous. Because the Commission has not yet had "the opportunity to rule on the precise issue," Hydro Resources, CLI-06-7, 63 N.R.C. at 166, and because this interpretation raises a substantial question of policy in undermining the Commission's determination to rely on licensing

Decision at 115-16. The Board also fails to acknowledge that the LRA states that the AMP takes no exceptions to NUREG-1801, certifying that Entergy's AMP is the same as the AMP described in NUREG-1801.

commitments that could affect pending and future proceedings, Commission review is warranted.

Accordingly, the Commission should grant the NRC Staff's Petition, reverse the Board's Decision with respect to NEC Contentions 2, 2A and 2B insofar as it predicates the issuance of the renewed license for VY on the performance and submittal of two calculations, and direct the Board to remove such a restriction from its Decision so that the VY license can be renewed without delay.

Respectfully Submitted,

A handwritten signature in black ink, reading "Matias F. Travieso-Diaz", written over a horizontal line.

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Dated: December 19, 2008

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Commission

In the Matter of)
)
Dominion Nuclear Connecticut, Inc.) Docket No. 50-426-OLA
)
(Millstone Nuclear Power Station, Unit 3)) ASLB No. 08-862-01-OLA
)

CERTIFICATE OF SERVICE

I hereby certify that copies of "Entergy's Answer in Support of NRC Staff's Petition for Review of The Licensing Board's Partial Initial Decision, LBP-08-25" were served on the persons listed below by first class mail , and, where indicated by an asterisk, by e-mail, this 19th day of December, 2008.

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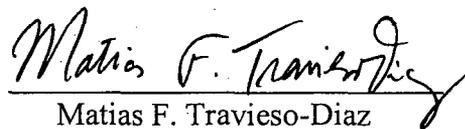
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