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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE COMMISSION

In the Matter of)
)
AMERGEN ENERGY COMPANY, LLC)
(Oyster Creek Nuclear Generating Station))
_____)

Docket No.
50-219-LR

MOTION BY NUCLEAR INFORMATION AND RESOURCE SERVICE; JERSEY SHORE NUCLEAR WATCH, INC.; GRANDMOTHERS, MOTHERS AND MORE FOR ENERGY SAFETY; NEW JERSEY PUBLIC INTEREST RESEARCH GROUP; NEW JERSEY SIERRA CLUB; AND NEW JERSEY ENVIRONMENTAL FEDERATION TO REOPEN THE RECORD AND FOR LEAVE TO FILE A NEW CONTENTION, AND PETITION TO ADD A NEW CONTENTION

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TABLE OF CONTENTS

PRELIMINARY STATEMENT	1
NEW INFORMATION AVAILABLE.....	2
ARGUMENT	4
I. The Commission Should Hear This Motion	4
II. The Record Must Be Reopened.....	5
A. This Motion Is Timely.....	5
B. This Motion Raises A Significant Safety Issue.....	7
C. The New Evidence Could Materially Affect The Licensing Decision.....	9
D. Citizens Are Raising An Admissible New Contention	11
III. Citizens New Contention Regarding Metal Fatigue Meets Regulatory Requirements	11
A. Specific Statement of the Contention.....	11
B. Explanation of Basis.....	12
C. The New Contention Is Within The Scope of License Renewal.....	13
D. The New Contention Raises A Material Dispute.....	13
E. This Request Is Timely	14
CONCLUSION	19

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
OFFICE OF THE SECRETARY

BEFORE THE COMMISSION

In the Matter of)
) Docket No. 50-0219-LR
AMERGEN ENERGY COMPANY, LLC)
)
(License Renewal for the Oyster Creek)
Nuclear Generating Station) April 18, 2008
_____)

**MOTION TO REOPEN THE RECORD AND FOR LEAVE TO FILE A NEW
CONTENTION, AND PETITION TO ADD A NEW CONTENTION**

PRELIMINARY STATEMENT

Nuclear Information and Resource Service, Inc., Jersey Shore Nuclear Watch, Inc., Grandmothers, Mothers and More for Energy Safety, New Jersey Public Interest Research Group, New Jersey Sierra Club, and the New Jersey Environmental Federation (collectively "Citizens") submit this Motion because the NRC Staff has recently notified the Commission of significant new information indicating that certain metal fatigue calculations for Oyster Creek Nuclear Generation Station ("Oyster Creek") may not be conservative because they are too simplistic. Even the non-conservative calculations predict that certain safety-critical components at Oyster Creek would approach the allowable fatigue limits during any period of extended operation. Furthermore, the proposed metal fatigue monitoring for these components is also based on the non-conservative approach. Thus, the metal fatigue monitoring program is inadequate to ensure that critical components do not exceed their allowable life, which would be likely to occur in the absence of an adequate program. This issue is of high safety significance

because even NRC's spokesman has conceded that failure of one of the components at issue could cause a severe accident.

NEW INFORMATION AVAILABLE

On April 3, 2008 the NRC Staff notified the Commission that use of a simplified method to calculate cumulative usage factors ("CUFs") for recirculation nozzles at Oyster Creek may not be conservative. Memorandum from Samson S. Lee to the Commission, dated April 3, 2008 *available at* ML080930335. The Staff therefore announced its intention to ask AmerGen to perform a confirmatory analysis consistent with the methodology in Section III of the ASME Code. *Id.* Subsequently on April 11, 2008, the NRC Staff published a regulatory issue summary for all operators of power reactors stating their concerns about the use of the simplified method and that they are considering further regulatory actions for plants that used the simplified analysis to obtain a renewed license. NRC Regulatory Issue Summary 2008-10, Fatigue Analysis of Nuclear Power Plant Components, dated April 11, 2008 *available at* ML080950235.

Confirming that the April 3, 2008 notification is safety significant, a newspaper article about it quoted NRC's spokesman stating that if a recirculation nozzle breaks, "it could lead to a severe accident, it would be a challenging situation for the control room operators." Todd Bates, *NRC Want Nuclear Plant's Water Nozzles Rechecked*, Asbury Park Press, April 7, 2008. NRC's spokesman continued by stating that the nozzle is "one of those components that needs to be carefully monitored." *Id.* When Citizens sought additional information from the Staff regarding the notification, the Staff told them to look at the filings regarding metal fatigue in the proceeding concerning the Vermont Yankee Nuclear Power Station ("Vermont Yankee").¹ E-mail from Mary Baty, Esq. to Richard Webster, Esq., dated April 7, 2008.

¹ *Entergy Nuclear Vermont Yankee L.L.C. and Entergy Nuclear Operations, Inc. (Vermont Yankee Nuclear Power Station)*, Docket No. 50-271-LR.

In the Vermont Yankee proceeding, the NRC Staff concluded that a simplified method used to calculate the ability of certain components to withstand repeated transients was inadequate. Transcript of 549th ACRS Meeting on February 7, 2008 at 8-10 *available at* ML080500208; Declaration of Dr. J. Hopenfled, dated April 15, 2008 (“Hopenfled Decl.”) at ¶ 5 attached as Exhibit MFC-1. It therefore required the applicant, Entergy Nuclear Operations, Inc., to carry out a more sophisticated calculation in accordance with the requirements of Section III of the ASME code. Transcript of 549th ACRS Meeting at 10-11; Transcript of 550th ACRS Meeting on March 6, 2008 at 119-121 *available at* ML080740427. This more sophisticated calculation yielded a predicted CUF that was approximately 40% greater than the simplified method. Hopenfled Decl. at ¶ 6.

Using a similar simplified method,² AmerGen has concluded that the fatigue usage factor corrected for environmental effects for the recirculation outlet nozzle at Oyster Creek is 0.978, which is only 0.022 from the maximum allowable factor of 1. AmerGen Response to Request For Additional Information, dated May 1, 2006 at Table 4.3.4-1 (“RAI”) *available at* ML061240217; Hopenfled Decl. at ¶ 9. Any increase of over 2.2% in this factor would therefore yield a result that is greater than is allowable. Furthermore, within the margin of error of the calculation, the recirculation valve is already predicted to reach the allowable limit. *Id.* Because the reanalysis in Vermont Yankee produced an estimate of the CUF that was 40% greater, the

² Citizens have not yet been able to obtain the analysis conducted by AmerGen for Oyster Creek, because AmerGen claims that the information is proprietary and has refused to provide Citizens with a copy under an existing protective order. E-mail from Alex Polonsky, Esq. to Richard Webster, Esq., dated April 11, 2008. However, the analysis was carried out by Structural Integrity Associates, the same contractor as did the calculations at Vermont Yankee, AmerGen Response to Request For Additional Information, dated May 1, 2006 at 6 *available at* ML061240217, the Staff have pointed to the Vermont Yankee proceeding as illustrating the precise nature of the issue raised by the notification, E-mail from Mary Baty, Esq. to Richard Webster, Esq., dated April 7, 2008, and Structural Integrity Associates stated that its predictions of metal fatigue for the feedwater and spray nozzles at Vermont Yankee used the same simplified method as was used at Oyster Creek. Hopenfled Decl. at ¶ 4.

confirmatory analysis at Oyster Creek will likely exceed the acceptable level, if the assumptions about the environment stay the same. *Id.* at ¶¶ 6, 9.

In addition to the recirculation nozzle, the feedwater nozzle has an environmentally corrected CUF that was estimated at 0.843. RAI at Table 4.3.4-1. The fatigue analysis for the recirculation nozzles may not be bounding for other components. Hopensfeld Decl. at ¶ 9. Therefore, if the simplified metal fatigue analysis was also used for the feedwater nozzle, confirmatory analyses are also required for this component. *Id.* Finally, the stress-based fatigue monitoring regime relies upon the same simplified calculation that the NRC Staff have found to be non-conservative. Hopensfeld Decl. at ¶ 10. This means that the fatigue monitoring regime does not provide reasonable assurance that components will not operate beyond their allowable metal fatigue limits during the proposed period of extended operation.

ARGUMENT

I. The Commission Should Hear This Motion

Because a licensing board has no jurisdiction to consider a motion to reopen the record in a proceeding where it has issued its final decision and a party has already filed a petition for Commission review of the decision, a motion to reopen the record at that point should be referred to the Commission for consideration. *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 & 2), ALAB-823, 22 NRC 773, 775 (1985). Here, Citizens have already filed their petition for Commission review of the licensing board decision. Thus, jurisdiction over this motion properly rests with the Commission. Prior to filing this motion, Citizens consulted with the NRC Staff and AmerGen. The NRC Staff reserved their position until they see the motion, while AmerGen opposes the motion.

II. The Record Must Be Reopened

In accordance with 10 C.F.R. § 2.326 a motion to reopen the record must: be timely, address a significant safety issue, and show that it could materially affect the decision before the Commission:

(a) . . .

- (1) The motion must be timely. However, an exceptionally grave issue may be considered in the discretion of the presiding officer even if untimely presented;
- (2) The motion must address a significant safety or environmental issue; and
- (3) The motion must demonstrate that a materially different result would be or would have been likely had the newly proffered evidence been considered initially.

* * *

(d) A motion to reopen which relates to a contention not previously in controversy among the parties must also satisfy the requirements for nontimely contentions in § 2.309(c).

A. This Motion Is Timely

A motion to reopen the record in order to admit a new contention must be filed promptly after the relevant information needed to frame the contention becomes available. *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 & 2), CLI-90-6, 31 NRC 483, 487 (1990). Furthermore, a party's opportunity to gain access to information is a significant factor in a Board's determination of whether a motion based on such information is timely filed. *Houston Lighting & Power Co.* (South Texas Project, Units 1 and 2), LBP- 85-19, 21 NRC 1707, 1723 (1985). Moreover, where factual disclosures reveal a need for further development of an evidentiary record, the record may be reopened for the taking of supplementary evidence. *Tennessee Valley Authority* (Hartsville Nuclear Plant, Units 1A, 2A, 1B and 2B), ALAB-463, 7 NRC 341, 352 (1978).

Until recently the public had no way of knowing that the licensee was using an unproven non-conservative simplified method to calculate the CUFs In the current proceeding. Hopensfeld Decl. at ¶ 8. This is because the License Renewal Application for Oyster Creek (“LRA”), the RAI and the Safety Evaluation Report (“SER”) all failed to give any warning that the method used to calculate the CUFs for the recirculation nozzles did not comply with the ASME Code. *Id.*

The information upon which this motion is based has emerged over the last few months. In January 2008, at a hearing related to the Vermont Yankee proceeding, a consultant stated that it had used the same simplified methods to calculate fatigue for the feedwater and spray nozzles at Vermont Yankee and Oyster Creek. *Id.* at ¶ 4. In February 2008, the NRC decided that these methods were non-conservative. *Id.* at ¶ 5. Shortly thereafter a revised analysis for the feedwater nozzle showed that a more complex technique produced a CUF prediction that is 40% higher. *Id.* at 6. Finally, on April 3, 2008, the NRC Staff issue a notification of significant new information stating that the simplified analysis carried out for the recirculation nozzle at Oyster Creek was not conservative. *Id.* at ¶ 7. However, Citizens have still not been able to obtain that analysis because AmerGen has claimed that it is proprietary and has refused to provide it to Citizens under a protective order that is currently in place. E-mail from Alex Polonsky, Esq. to Richard Webster, Esq., dated April 11, 2008.

Prior to the NRC Staff notification on April 3, 2008 and a follow up e-mail from the NRC Staff on April 7, 2008 stating that Citizens should look to the Vermont Yankee proceeding for further information on the issue, Citizens were unaware that the metal fatigue calculations for the recirculation nozzles at Oyster Creek suffered from the same defect found at Vermont Yankee for the feedwater and spray nozzles. Furthermore, with the exception of the fatigue predictions

for the recirculation nozzles, it is still unclear which other fatigue calculations for Oyster Creek suffer from this defect. Although Citizens still do not have full information on the situation, they are filing this motion within 20 days of the Staff notification to ensure that it is timely and to illustrate that further development of the record is required on this issue. In the alternative, even if this Motion is not timely, it should be granted because it raises a number of important issues that it is in the public interest to resolve.

B. This Motion Raises A Significant Safety Issue

A hearing must be reopened whenever a significant unresolved safety question is involved. *Vermont Yankee Nuclear Power Corp.* (Vermont Yankee Nuclear Power Station), ALAB-138, 6 AEC 520, 523 (1973), *reconsid. den.*, ALAB-141, 6 AEC 576. Here, even the non-conservative analysis predicted that the recirculation outlet nozzle would be at the limit of what is allowed by the ASME Code by the end of the proposed period of extended operation. Hopenfeld Decl. at ¶ 9. At Vermont Yankee the confirmatory analysis for the feedwater nozzle predicted a CUF that was 40% higher than the simplified non-conservative analysis. *Id.* at ¶ 6. Therefore, the requested confirmatory analysis at Oyster Creek is likely to find that the metal fatigue of the recirculation outlet nozzle would go beyond its allowable limits during the proposed period of extended operation if no further action is taken. *Id.* at ¶ 9. In addition, the stress-based fatigue tracking program at Oyster Creek is also based on the non-conservative analysis method. *Id.* at ¶ 10. This means that the stress-based fatigue monitoring program does not comply with 10 C.F.R. § 54.21(c)(1)(iii) and must be amended. *Id.* Therefore, there are currently a number of unresolved significant safety questions concerning metal fatigue at Oyster Creek.

Confirming the safety significance of the issue, NRC's spokesman stated that if a recirculation nozzle breaks, "it could lead to a severe accident, it would be a challenging

situation for the control room operators.” Todd Bates, *NRC Want Nuclear Plant's Water Nozzles Rechecked*, Asbury Park Press, April 7, 2008. NRC's spokesman continued by stating that the nozzle is “one of those components that needs to be carefully monitored.” *Id.*

Of even greater concern is that the non-conservative calculations have apparently been used at more reactors than just Vermont Yankee and Oyster Creek. At minimum, they have also been used at Dresden/Quad Cities, Nine Mile Point Unit 1, Ginna, Point Beach, Farley, Palisades, and Millstone 2/3. Entergy Nuclear, Presentation Slides at NRC Public Meeting on January 8, 2008 at 20 *available at* ML080100282. Thus, this metal fatigue issue is not only a significant safety concern at Oyster Creek, it is also of broad public interest.

Most generally, this issue is directly relevant to concerns about the thoroughness of the safety reviews that NRC carried out prior to relicensing. In a Petition dated January 3, 2008, Citizens and other groups requested the Commission to suspend four ongoing license renewal proceedings because the NRC Staff's reviews of applications for license renewal were demonstrably inadequate. The belated discovery by Staff that the metal fatigue analysis at Oyster Creek may not be conservative, when the margin from the acceptable value is very small, further illustrates that the Staff's reviews are missing safety-critical issues. This is further confirmed by the list of seven other reactors at which the non-conservative calculations were apparently accepted by the Staff.

Staff's failure to spot this issue at eight reactors until after it was raised by Dr. Hopfenfeld as the expert for the intervenors in the Vermont Yankee proceeding raises fundamental concerns. *See* Fourth Declaration of Dr. Joram Hopfenfeld, dated July 10, 2007 at ¶¶ 18-24 *available at* ML072010437 (identifying a number of problems with the CUF analysis at Vermont Yankee); Seventh Declaration of Dr. Joram Hopfenfeld, dated March 11, 2008 at ¶¶ 4-13 *available at*

ML080850074 (CUF for feedwater nozzle at Vermont Yankee increased from 0.0636 to 0.0889 when using more complex calculation, which remains inadequate); NRC Regulatory Issue Summary 2008-10, Fatigue Analysis of Nuclear Power Plant Components, dated April 11, 2008 *available at* ML080950235 (advising licensees that the NRC Staff is considering further action for plants with renewed licenses where the simplified analysis was used). As discussed in the pending Petition, because Citizen intervention is an arduous and difficult process, very few issues will get to a hearing. The Commission must therefore ensure that Staff safety reviews are fully comprehensive. It now appears that the Commission has failed to achieve this goal for at least seven reactors. Furthermore, in order to ensure that the safety review for Oyster Creek is comprehensive, the Commission should grant this motion.

C. The New Evidence Could Materially Affect The Licensing Decision

This motion is not relevant to the litigated contention. Therefore, the appropriate test is to determine whether the issue could materially affect the outcome of the license renewal proceeding. *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), LBP-83-30, 17 NRC 1132, 1142 (1983). As discussed above, the new information shows that the time limited aging analysis (“TLAA”) proposed by the LRA for at least the recirculation nozzles is inadequate. In addition, the confirmatory analysis will likely show that at least the recirculation outlet nozzle would go beyond the allowable ASME Code limit before the end of the proposed period of extended operation. As discussed below, the decisions by the Atomic Safety and Licensing Board (“ASLB”) in the Vermont Yankee proceeding to admit similar contentions regarding metal fatigue also show that it is material to the licensing decision.

The materiality of this issue is confirmed by the NRC Staff’s decision to notify the Commission of “significant new information” regarding the lack of conservatism in the metal fatigue calculations and request a confirmatory analysis from AmerGen. Such notification is

only required when new information becomes available that is either relevant and material to the matter being adjudicated or modifies evidence that is already before the adjudicatory body.

Tennessee Valley Authority (Browns Ferry Nuclear Plant, Units 1, 2 & 3), ALAB-677, 15 NRC 1387, 1388, 1394 (1982). The new information regarding metal fatigue does not concern any of the evidence related to the admitted contention. To meet the standard for notification, the metal fatigue issue must therefore be relevant and material to the licensing decision for Oyster Creek that is before the Commission. Thus, to meet the requirements of the Atomic Energy Act (“AEA”) the Commission should allow Citizens the opportunity to request a hearing on this issue. *Union of Concerned Scientists v. NRC*, 735 F.2d 1437, 1438-50 (D.C. Cir. 1984), *cert. denied*, 469 U.S. 1132 (1985). *See also Union of Concerned Scientists v. NRC*, 920 F.2d 50, 53 (D.C. Cir. 1990) (holding that “Section 189(a) [of the Atomic Energy Act, 42 U.S.C. 2239(a),] prohibits the NRC from preventing all parties from ever raising in a hearing a specific issue it agrees is material to [a licensing]. . . decision.”).

Finally, the NRC Staff has a legal responsibility to make safety findings on all relevant issues before a license or renewed license may issue. *Commonwealth Edison Co.* (Byron Nuclear Power Station, Units 1 and 2), ALAB-678, 15 NRC 1400, 1420 n.36 (1982), *citing South Carolina Electric and Gas Co.* (Virgil C. Summer Nuclear Station, Unit 1), ALAB-642, 13 NRC 881, 895-96 (1981). Furthermore, as the Commission has stated, “the NRC may not issue a license until all appropriate safety findings have been made.” 69 Fed. Reg. at 2,202 (citations omitted). Accordingly, if unresolved, the outstanding significant safety issue concerning metal fatigue at Oyster Creek would prevent license renewal completely. Conversely, the resolution of this problem is likely to affect the outcome of the licensing

proceeding, by requiring at least a different method of analyzing and monitoring metal fatigue for the recirculation nozzles and possibly other structures, such as the feedwater nozzle.

D. Citizens Are Raising An Admissible New Contention

The rest of this motion shows that Citizens meet the criteria for an admissible contention concerning metal fatigue. Although 10 C.F.R. § 2.326(d) suggests that the contention must meet the criteria for non-timely contentions contained in 10 C.F.R. § 2.309(c), Citizens believe that it should be sufficient to show that the contention meets the less stringent timing criteria of 10 C.F.R. § 2.309(f)(2). Nonetheless, out of an overabundance of caution Citizens show below that they meet both tests for the timing of new contentions.

III. Citizens New Contention Regarding Metal Fatigue Meets Regulatory Requirements

Citizens have closely modeled their contention on that raised by New England Coalition in the Vermont Yankee proceeding based on studies by Structural Integrity Associates predicting the metal fatigue for the reactor pressure vessel nozzles. See New England Coalition, Inc.'s (NEC) Motion To File A Timely New Or Amended Contention, dated July 12, 2007 available at ML072010437. That contention was combined with another similar contention and was admitted into the proceeding. *Entergy Nuclear Vermont Yankee L.L.C. and Entergy Nuclear Operations, Inc.* (Vermont Yankee Nuclear Power Station), LBP-07-15 (November 7, 2007) available at ML073110424. The admission of a similar contention in the Vermont Yankee proceeding demonstrates that Citizens' proposed contention meets the formal requirements of 10 C.F.R. § 2.309(f)(1).

A. Specific Statement of the Contention

Petitioners must "provide a specific statement of the issue of law or fact to be raised or controverted." 10 C.F.R. § 2.309(f)(1)(i). The new contention is:

The predictions of metal fatigue for at least the recirculation nozzles at Oyster Creek are not conservative. A confirmatory analysis using a conservative method is required to establish whether these nozzles could exceed allowable metal fatigue limits during any extended period of reactor operation. In addition, similar confirmatory analyses must be carried out for other structures for which the non-conservative analysis was used. Finally, the current stress-based metal fatigue monitoring program at Oyster Creek is inadequate because it relies upon non-conservative analysis techniques.

B. Explanation of Basis

At the preliminary stage, Citizens do not have to submit admissible evidence to support their contention, rather they have to “[p]rovide a brief explanation of the basis for the contention,” 10 C.F.R. § 2.309(f)(1)(ii), and “a concise statement of the alleged facts or expert opinions which support the ... petitioner’s position.” 10 C.F.R. § 2.309(f)(1)(v). This rule ensures that “full adjudicatory hearings are triggered only by those able to proffer ... minimal factual and legal foundation in support of their contentions.” *In the Matter of Duke Energy Corp.* (Oconee Nuclear Station, Units 1, 2, and 3), CLI-99-11, 49 N.R.C. 328, 334 (1999) (emphasis added).

However, where the record has been closed, a slightly higher standard is imposed. In particular, the evidence presented in affidavit form must be given by competent individuals with knowledge of the facts or by experts in the disciplines appropriate to the issues raised. *Pacific Gas & Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 & 2), ALAB-775, 19 NRC 1361, 1367 n.18 (1984), *aff’d sub. nom. San Luis Obispo Mothers for Peace v. NRC*, 751 F.2d 1287 (D.C. Cir. 1984), *aff’d on reh’g en banc*, 789 F.2d 26 (1986).

Here Citizens have easily met this standard by relying upon information about the inadequacy of the metal fatigue predictions at Oyster Creek provided by the NRC Staff. Citizens have supplemented this information with an explanatory declaration from Dr. Hopenfeld, the expert who first alerted the NRC Staff to the metal fatigue issue in the Vermont Yankee

proceeding. As discussed above, the facts show that there is a significant outstanding safety issue concerning the inadequate prediction and monitoring of metal fatigue for some or all of the reactor pressure vessel nozzles (and possibly other components) at Oyster Creek.

C. The New Contention Is Within The Scope of License Renewal

Petitioners are required to demonstrate that the issues raised in their contentions are within the scope of the proceeding, 10 C.F.R. § 2.309(f)(1)(iii). Here the issues relate to the TLAA of parts of the reactor pressure vessel, which are clearly within scope. 10 C.F.R. § 54.21.

D. The New Contention Raises A Material Dispute

The regulations require petitioners to “[d]emonstrate that the issue raised in the contention is material to the findings the NRC must make to support the action that is involved in the proceeding.” 10 C.F.R. § 2.309(f)(1)(iv). A showing of materiality is not an onerous requirement, because all that is needed is a “minimal showing that material facts are in dispute, indicating that a further inquiry is appropriate.” *Georgia Institute of Technology*, CLI-95-12, 42 N.R.C. 111, 118 (1995); *Final Rule, Rules of Practice for Domestic Licensing Proceedings – Procedural Changes in the Hearing Process*, 54 Fed. Reg. 33,171 (Aug. 11, 1989).

As discussed above, it is clear from 10 C.F.R. § 54.21(c), the decision by NRC to notify the Commission about the metal fatigue issue, and the decisions by the ASLB in the Vermont Yankee proceeding that this issue is material to the licensing decision. However, unusually this material issue has arisen after the NRC Staff have already issued the SER and decided that license renewal for Oyster Creek is permissible subject to a number of conditions. SER at 1-18; 2-177. Thus, the contention contradicts the finding of the SER that all safety issues have been satisfactorily resolved. However, because the Staff have found that the fatigue predictions for the recirculation nozzles may not be conservative and are requesting a confirmatory analysis from AmerGen, it appears that the Staff agree that the discovery of significant new information concerning metal fatigue has undermined the ultimate conclusion of the SER, at least until the confirmatory analysis is complete.

Unlike the Staff, AmerGen has not yet taken a formal position on whether the LRA is sufficient regarding the metal fatigue issue. Comments by Exelon's³ spokesman regarding the requirement for new calculations indicated that Exelon believes the simplified method is as conservative as the ASME Code-compliant calculation and therefore will yield similar results. Rebecca Smith, *Nuclear Plant Analyses Ordered*, Wall Street Journal at A4, April 18, 2008. Thus, at minimum there is a material dispute with AmerGen about whether the current metal fatigue analysis is conservative for the recirculation nozzles and whether the stress-based fatigue monitoring program needs to be improved.

E. This Request Is Timely

Petitioners may add timely new contentions after filing their initial petition, so long as they act in accordance with 10 C.F.R. § 2.309(f)(2). *Entergy Nuclear Vermont Yankee, L.L.C.* (Vermont Yankee Nuclear Power Station), LBP-05-32, 62 NRC 813 (2005). The Commission's regulations allow for a new safety contention to be filed upon a showing that:

- (i) The information upon which the amended or new contention is based was not previously available;
- (ii) The information upon which the amended or new contention is based is materially different than information previously available; and
- (iii) The amended or new contention has been submitted in a timely fashion based on the availability of the subsequent information.

10 C.F.R. § 2.309(f)(2)(i)-(iii). Thus, when the ASLB found that AmerGen's new commitment to increase the frequency of thickness monitoring mooted Citizens' initial contention, the ASLB allowed Citizens to file a new contention, but required the new contention to be timely in accordance with 10 C.F.R. § 2.309(f)(2). *In the Matter of AmerGen Energy Company* (License Renewal for Oyster Creek Nuclear Generating Station), LBP-06-16, 63 N.R.C. 737, 744-45 (2006). Similarly, the ASLB in the Vermont Yankee license renewal proceeding recently recognized that the time to file contentions is placed at a very early stage, when the renewal

³ AmerGen is a wholly-owned subsidiary of Exelon.

application is docketed. *Entergy Nuclear Vermont Yankee L.L.C. and Entergy Nuclear Operations, Inc.* (Vermont Yankee Nuclear Power Station), LBP-07-15, slip op. at 6 n. 12 (November 7, 2007) available at ML073110424. After the initial time to present contentions has expired, new contentions must meet a timeliness test. When significant new information becomes available this test should be a relatively simple matter to meet. *Id.* at 5; 10 C.F.R. § 2.309(f)(2). However, in the absence of new information the applicable test is more stringent. LBP-07-15 slip op. at 6. The ASLB also noted that “normally a great deal of new and material information becomes available to the public after the docketing” through application amendments or the safety evaluation report. LBP-07-15, slip op. at 6 n. 12. This information can then be used to file new contentions, satisfying the AEA requirement that the public must be afforded an opportunity to request a hearing on all material safety issues. *Id.*

Here, the Commission should now find that the new contention meets the requirements of 10 C.F.R. § 2.309(f)(2)(i) and (ii) because it is based upon new information that was “not previously available,” and is “materially different than information previously available.” Turning to the last element, the Commission and on occasions the ASLB has interpreted the “timely fashion” requirement of 10 C.F.R. § 2.309(f)(2)(iii) as being 30 days from the availability of the new information upon which the new contention is based. *E.g. Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-04-4, 59 NRC 31, 46 (2004). Because this motion is based on the April 3, 2008 notification, which became available 15 days ago, it is easily within the timeliness requirement of 10 C.F.R. § 2.309(f)(2)(iii).

NRC Staff and AmerGen may argue that the regulations require Citizens to meet the timeliness test for a late-filed contention contained in 10 C.F.R. § 2.309(c), based on the stated requirement in 10 C.F.R. § 2.326(d). This requirement apparently resulted from the codification of a Commission decision on a certified question regarding reopening the record to admit a late-filed contention. *Pacific Gas & Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 & 2),

CLI-82-39, 16 NRC 1712, 1714-15 (1982). However, the codification failed to consider the possibility that the contention accompanying the motion to reopen could be timely. This may be because the second part of 10 C.F.R. § 2.309(f)(2), upon which Citizens are relying to argue that the proposed contention is timely, was added to the Part 2 rules in a major revision in 2004. *In The Matter Of Exelon Generation Co., LLC* (Early Site Permit for Clinton ESP Site), LBP-05-19, 62 N.R.C. 134, 162 (2005). Thus, it appears that the drafters of the revised Part 2 rules failed to take account of the possibility that motions to reopen could be accompanied by timely safety contentions filed pursuant to the second part of 2.309(f)(2). Furthermore, 2.309(f)(2) ensures that the Commission meets the AEA mandate to offer the possibility of a hearing on all material issues, a mandate that was first recognized by *Union of Concerned Scientists v. NRC*, 735 F.2d 1437 (D.C. Cir. 1984). *Entergy Nuclear Vermont Yankee, L.L.C.* (Vermont Yankee Nuclear Power Station), LBP-06-14, 63 NRC 568, 573 (2006). Thus, it is not surprising that the Commission decision in 1982, from which the codification in 10 C.F.R. § 2.326(d) was drawn, did not foresee the finding of the United States Court of Appeal for the D.C. Circuit in 1984, two years later.

Therefore, Citizens believe that 10 C.F.R. § 2.326(d) is better read to mean that petitions to admit new contentions that accompany motions to reopen should meet the requirements of 10 C.F.R. § 2.309(c) if they are late-filed, or the requirements of 10 C.F.R. § 2.309(f)(2) if they are timely filed following the discovery of new information. However, even if the 10 C.F.R. § 2.309(c) standard applies, Citizens meet that standard.

The standard contained in Section 2.309(c) is that late-filed contentions will be admitted based upon a balancing of the following factors:

- (i) Good cause, if any, for the failure to file on time;

- (ii) The nature of the requestor's/petitioner's right under the Act to be made a party to the proceeding;
- (iii) The nature and extent of the requestor's/petitioner's property, financial or other interest in the proceeding;
- (iv) The possible effect of any order that may be entered in the proceeding on the requestor's/petitioner's interest;
- (v) The availability of other means whereby the requestor's/petitioner's interest will be protected;
- (vi) The extent to which the requestor's/petitioner's interests will be represented by existing parties;
- (vii) The extent to which the requestor's/petitioner's participation will broaden the issues or delay the proceeding; and
- (viii) The extent to which the requestor's/petitioner's participation may reasonably be expected to assist in developing a sound record.

In evaluating the admissibility of a late-filed contention, the first and foremost factor is whether good cause exists that will excuse the late-filing of the contention. *See Commonwealth Edison Co.* (Braidwood Nuclear Power Station, Units 1 and 2), CLI-86-8, 23 NRC 241, 244 (1986). The good cause element has two components that may impact on a presiding officer's assessment of the timeliness of a contention's filing: (1) when was sufficient information reasonably available to support the submission of the late-filed contention; and (2) once the information was available, how long did it take for the contention admission request to be prepared and filed. *See Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), LBP-99-3, 49 NRC 40, 46-48 (assessing late-filing factors relative to petition to intervene), *aff'd*, CLI-99-10, 49 NRC 318 (1999); *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), LBP-01-13, 53 NRC 319, 324 (2001).

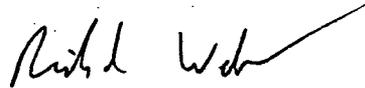
First, and most importantly, Citizens have good cause for not submitting the contention earlier, because they could not have filed the proposed contention before the NRC Staff issued its notification on April 3, 2008 and they have filed this motion promptly thereafter. Second, Citizens are already parties in this proceeding. Third, Citizens include individuals who live close to the plant and have intense interest in its ongoing safety. Fourth, renewal of the license without

a resolution of this issue would cause Citizens serious distress, because they would not have reasonable assurance of adequate protection of their safety. Furthermore, if the proposed contention were admitted it would be likely to have a material effect on the licensing decision that is before the Commission. Fifth, Citizens have no other available means to protect their interests because in the absence of an admitted contention, AmerGen has refused to provide a copy of the relevant fatigue analyses. In addition, other NRC processes are now beyond the stage where Citizens input could significantly affect the Commission's decision regarding relicensing. Sixth, there are no other parties in this proceeding to represent Citizens' interests. Seventh, if AmerGen performs a satisfactory confirmatory analysis for all the components for which it used the simplified fatigue analysis and properly amends the fatigue monitoring program, the request will not unduly delay the proceeding because AmerGen will be able to move for summary disposition of the proposed contention or argue that it has become moot. Finally, Citizens' expert has already helped the Staff to identify a problem with the metal fatigue calculations at nine reactors, including Vermont Yankee and Oyster Creek, that the Staff would otherwise have missed. Furthermore, at present the record is insufficient to allow the Commission to conclude that the TLAA at Oyster Creek is adequate. Thus, admitting the contention would further assist the Commission to develop a sound record.

CONCLUSION

For the forgoing reasons, Citizens respectfully request that the Commission reopen the record in this proceeding and admit the proposed new contention.

Respectfully submitted



Richard Webster, Esq.
Eastern Environmental Law Center
Attorneys for Citizens

Dated: April 18, 2008

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE COMMISSION

In the Matter of)	
)	
AMERGEN ENERGY COMPANY, LLC)	Docket No.
(Oyster Creek Nuclear Generating Station))	50-219-LR
)	

DECLARATION OF DR. JORAM HOPENFELD

1. My name is Dr. Joram Hopfenfeld. Grandmothers Mothers and More for Energy Safety has retained me as an expert witness in proceedings concerning the application of AmerGen Energy Company LLC to renew its operating license for the Oyster Creek Nuclear Generating Station ("Oyster Creek") for twenty years beyond the current expiration date of April 9, 2009.

2. I am a mechanical engineer and hold a doctorate in engineering. I have 45 years of professional experience in the fields of instrumentation, design, project management, and nuclear safety, including 18 years in the employ of the U.S. Nuclear Regulatory Commission ("NRC"). My curriculum vitae was previously filed in as an attachment to my declaration in support of a Petition to Intervene in the license renewal proceedings regarding Vermont Yankee Nuclear Generating Station ("Vermont Yankee"). New England Coalition's Petition for Leave to Intervene, Request for Hearing, and Contentions, dated 2006/05/26 at Exhibit 7 attachment A, *available at* ML061640032.

3. In the Vermont Yankee license renewal proceeding the Atomic Safety and Licensing Board admitted a contention regarding metal fatigue based in part upon my expert declaration. The licensee then did an assessment of metal fatigue that used a simplified method, which, among other things, uses a simplified input to the Green Function. I provided further declarations criticizing this approach as being too simplistic.

4. At an NRC public meeting on January 8, 2008 Structural Integrity Associates ("SI"), the consultant that did the metal fatigue analysis at Vermont Yankee, stated that the simplified methodology was also used by Oyster Creek and a number of other plants as part of their license renewal applications. The purpose of the NRC meeting was to discuss certain concerns that the NRC Staff had with the simplified method to calculate the cumulative use factors ("CUFs") for the recirculation, feedwater and spray nozzles at the Vermont Yankee nuclear plant. SI was not able to answer some basic questions about the accuracy of the simplified methodology. While arguing vehemently that the simplified method results in conservative life predictions, SI refused to answer questions concerning the uncertainty of important inputs to the Green's Function such as heat transfer coefficients and oxygen levels to the environmental correction factor.

5. About a month later, an NRC audit of the feed water nozzle calculations at Vermont Yankee, revealed that SI's assurances were incorrect and the simplified method is not conservative when compared to the classical ASME NB-3200 predictions of the CUFs. Most recently, on April 11, 2008, the NRC published regulatory issue 2008-10, which confirmed that the simplified methodology did not produce conservative results for the feedwater nozzle at Vermont Yankee.

6. After NRC Staff decided that the simplified method was not conservative, the licensee at Vermont Yankee carried out a confirmatory analysis. For the feedwater nozzle, the confirmatory analysis yielded an estimate for the CUF that was approximately 40% higher than the simplified analysis. Most recently, I have provided a declaration criticizing the confirmatory analysis as inadequate for various reasons. Seventh Declaration of Dr. Joram Hopenfeld, dated March 11, 2008 *available at* ML080850074.

7. An NRC notification dated April 3, 2008 stated that the simplified method used at Oyster Creek for calculating CUF may not be conservative. Although I have not been able to review the calculations that were carried out for Oyster Creek, based on my knowledge of the issue at Vermont Yankee and SI's statement that the same simplified method was used, I fully agree with this assessment. Furthermore, I expect that the simplified method has under-estimated the CUF of the recirculation nozzle at Oyster Creek.

8. I have reviewed relevant parts of the Oyster Creek License Renewal Application ("LRA"), a relevant response to additional information ("RAI"), dated May 1, 2006 *available at* ML061240217, and the final Oyster Creek Safety Evaluation Report ("SER"). None of these documents provide any warning that the method used to calculate the CUF for the recirculation nozzle did not comply with the ASME code. Until recently, the public therefore had no way of knowing that instead of using the known ASME NB-3200 methodology the licensee was using an unproven non-conservative simplified method to calculate the CUFs. The RAI, which gives the most detail, merely states that the cumulative use factors provided in the LRA were based upon studies carried out by SI. RAI at 6-7.

detail, merely states that the cumulative use factors provided in the LRA were based upon studies carried out by SI. RAI at 6-7.

9. The realization that the calculated CUFs at Oyster Creek may not be conservative raises several concerns. First, the simplified method predicts that the environmentally adjusted CUF ("CUF_{EN}") for the recirculation outlet nozzle is 0.978. RAI at Table 4.3.4-1. According to the ASME Code, the upper allowable limit is one. Within the margin of error of the calculations this means that the simplified method predicted that the ASME Code's upper allowable limit would be reached after approximately 60 years of operation. It is therefore likely that an analysis that complies with the ASME Code would predict that the CUF would become greater than one during the proposed period of extended operation. Second, during the LRA review period, the Staff issued the SER without realizing that the simplified method was not conservative. Third, the CUFs for the feedwater and the spray nozzles may have also been based on the simplified method and therefore may also be under-predicted. The CUF_{EN} for the feedwater nozzle is already given as 0.843. RAI at Table 4.3.4-1. Thus, if the simplified method was also used for the feedwater nozzle, as is likely, a confirmatory analysis of this component is also required, because the recirculation nozzle CUF_{EN} may not be bounding for other components.

10. According to the Oyster Creek LRA, the design transients at Oyster Creek are tracked and corrective action is taken when a CUF_{EN} of unity is approached. As stated in the LRA, 4.3.1 the program is based on computing real time stress histories from the actual flow, temperatures and pressure histories using the simplified analysis.

Because the NRC has now concluded that this approach is inadequate, the entire stress

based fatigue monitoring program at Oyster Creek now does not comply with 10 C.F.R. § 54.21(c)(1)(iii), which requires an adequate time limited aging analysis (“TLAA”).

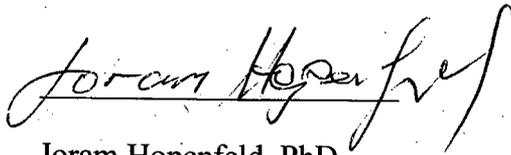
Therefore, the entire fatigue monitoring program at Oyster Creek must be reassessed.

11. In addition to the issue of the simplified analysis, SI appears to have made other non-conservative assumptions in calculating the environmental fatigue correction factor. In NUREG/CR-6909 – February 2007, the NRC states that: “Under certain environmental and loading conditions, fatigue lives in water relative to those in air can be a factor of ≈ 12 lower for austenitic stainless steels, ≈ 3 lower for Ni-Cr-Fe alloys, and ≈ 17 lower for carbon and low-alloy steels.” The environmental correction factors for low-alloy steel at Oyster Creek were between 2.17 and 10.28. RAI at Table 4.3.4-1.

Therefore, regardless of whether AmerGen uses the ASME Section III NB-3200 methodology or the simplified analysis to calculate the CUFs, the environmental factors in the LRA and the RAI are probably non-conservative and did not adequately differentiate between laboratory and reactor conditions. Therefore the CUF_{ENS} of safety-critical components like the feedwater and spray nozzles must be recalculated to ensure that they are conservative.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 15 day of April, 2008 at Rockville, Maryland.

A handwritten signature in cursive script that reads "Joram Hopenfeld". The signature is written in black ink and is positioned above the printed name.

Joram Hopenfeld, PhD

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE COMMISSION

In the Matter of)	
)	Docket No. 50-0219-LR
AMERGEN ENERGY COMPANY, LLC)	
)	
(License Renewal for the Oyster Creek)	
Nuclear Generating Station))	April 18, 2008
)	

CERTIFICATE OF SERVICE

I, Richard Webster, of full age, certify as follows:

I hereby certify that on April 18, 2008, I caused Citizens' Motion to Reopen The Record and for Leave to File A New Contention, and Petition to Add A New Contention to be served via email and U.S. Postal Service (as indicated) on the following:

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E-mail: HEARINGDOCKET@NRC.GOV

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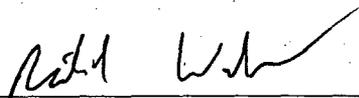
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Dated: April 18, 2008