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

In the Matter of	)	
NextEra Energy Seabrook, L.L.C.	)	Docket No. 50-443-LR
(Seabrook Station, Unit 1)	)	
	)	September 21, 2012

SUPPLEMENT TO FRIENDS OF THE COAST AND NEW ENGLAND COALITION'S MOTION FOR LEAVE TO FILE A NEW CONTENTION CONCERNING NEXTERA ENERGY SEABROOK'S AMENDMENT OF ITS AGING MANAGEMENT PROGRAM FOR SAFETY-RELATED CONCRETE STRUCTURES

I. INTRODUCTION

On August 27, 2012, intervenors, Friends of the Coast and New England Coalition ("Friends/NEC"), filed a motion (petition) for leave to file a new contention in the above captioned matter. The proposed new contention claims that the NextEra Energy Seabrook License Renewal Application Structures Monitoring Program Supplement-Alkali-Silica Reaction ("ASR") Monitoring, fails to demonstrate that the effects of aging on structures and components subject to an aging management review (AMR) are adequately managed so that the intended function(s) will be maintained consistent with the current licensing basis (CLB) for the period of extended operation.

Pursuant to 10 C.F.R.§2.309(f)(1) (v)[1], Friends/NEC, through its pro se representative, Raymond Shadis, now respectfully seeks leave of the presiding officer to

[1] 10 C.F.R.§2.309(f)(1) (v) Provide a concise statement of the alleged facts or expert opinions which support the requestor's/petitioner's position on the issue and on which the petitioner intends to rely at hearing, together with references to the specific sources and documents on which the requestor/petitioner intends to rely to support its position on the issue;

introduce four exhibits which bear new and material information providing additional basis or support of the proposed new contention .

II. APPLICABLE REGULATION UNDER 10 C.F.R.§309

While 10 C.F.R.2.309 (f)(1) speaks to amended or new contentions, Friends/NEC has styled this filing as "Supplement" because it does not propose change or amend the Friends/NEC draft contention in any way, but only to add (supplement) basis and support per 10 C.F.R.§2.309(f)(1)(v). Remaining requirements for introducing a new or amended contention in a license renewal proceeding [under 10 C.F.R.2.309 (f) (1) (ii) (iii) (iv) and (vii)] have been met in the Friends/NEC motion for a new contention. Friends/NEC now proposes to incorporate that the same acceptance criteria information in this supplement. Friends/NEC is prepared to address the proffered new exhibits and enhanced basis in the light of 10 C.F.R.§2.309(f)(1)(v) and10 C.F.R.§2.309(f)(2) in the following discussion.[2]

III. DISCUSSION

Friends/NEC provides the following documents:

- ML12242A370, "Request for Deviation from the Reactor Oversight Process Action Matrix to Provide Increased Oversight of the Alkali-Silica Reaction Issue at Seabrook" (Added To ADAMS September 14, 2012) EXHIBIT ONE

and

- ML121250588 "Seabrook Alkali-Silica Reaction Issue Technical Team Charter" (Added To ADAMS September 14, 2012) EXHIBIT TWO

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[2] 10 C.F.R.2.309 (f) (2) - Otherwise, contentions may be amended or new contentions filed after the initial filing only with leave of the presiding officer 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.

and;

- Ml12250A707, "Requests for Additional Information for the Review of the Seabrook Station, License Renewal Application -Set 19" (Added to ADAMS September 17, 2012, EXHIBIT THREE

and;

- Letter, September 13, 2012, Sandra Gavutis, Co-Director, C-10 Research and Education Foundation, Newburyport, Ma and Dr. David Wright, Executive Director Global Security Program Union of Concerned Scientists, Cambridge, MA to William M. Dean, Regional Administrator Region 1, USNRC King of Prussia, PA, EXHIBIT FOUR,

believing they constitute new information, material to a decision on admittance of the proposed new contention; thus information which the parties have an obligation to provide to the Atomic Safety and Licensing Board ("Board") in a prompt and timely fashion[3]. Also, Friends/NEC offers that these documents, not available when the petition was filed, support and provide additional basis for the proposed contention:

> The NextEra Energy Seabrook License Renewal Application, as amended by the Structures Monitoring Program Supplement-Alkali-Silica Reaction ("ASR") Monitoring, (dated May 16, 2012 and provided to Friends/NEC in NRC Staff Disclosures, July 6, 2012) fails to demonstrate as required by Part 54, "Requirements for Renewal of Operating Licenses for Nuclear Power Plants," Section 21(a)(3), of Title 10 of the *Code of Federal Regulations* (10 CFR 54.21(a)(3)), that the effects of aging on structures and components subject to an aging management review (AMR) are adequately managed so that the intended function(s) will be maintained

[3] All parties, including the NRC Staff, are obliged to bring any significant new information to the boards' attention.
Sacramento Municipal Utility District (Rancho Seco Nuclear Generating Station), CLI-93-3, 37 NRC 135, 152-53 n.46 (1993).

Parties in Commission proceedings have an absolute obligation to alert adjudicatory bodies in a timely fashion of material changes in evidence regarding: (1) new information that is relevant and material to the matter being adjudicated; (2) modifications and rescissions of important evidentiary submissions.... Similarly, internal Staff procedures must ensure that Staff counsel be kept fully informed of new developments.

Tennessee Valley Authority (Phipps Bend Nuclear Plant, Units 1 & 2), ALAB-752, 18 NRC 1318, 1320 (1983); Philadelphia Electric Co. (Limerick Generating Station, Units 1 & 2), ALAB-765, 19 NRC 645, 656 (1984); Philadelphia Electric Co. (Limerick Generating Station, Units 1 & 2), ALAB- 785, 20 NRC 848, 884 n.163 (1984).

consistent with the current licensing basis (CLB) for the period of extended operation.

Therefore, Friends/NEC is providing the documents as a "supplement" containing language that simply draws a nexus between the petition and the expressed misgivings of NRC experts and others regarding NextEra's plans for managing determination and preservation of operability of ASR-affected structures.

In its Motion for Leave to File a New Contention, Friends/NEC asserted that the NextEra Energy Seabrook License Renewal Application Structures Monitoring Program Supplement-Alkali-Silica Reaction ("ASR") Monitoring, (dated May 16, 2012) fails to demonstrate that the effects of aging on structures and components subject to an aging management review (AMR) are adequately managed so that the intended function(s) will be maintained consistent with the current licensing basis (CLB) for the period of extended operation.

Friends/NEC said further that the ASR monitoring program failed in two ways: (1) First-The proposed ASR Structures Monitoring Program is not a functional ,effective tool for [an] AMP [aging management program], and Second; NextEra has not developed reliable inventory and analysis on which to base an ASR monitoring program or aging management program for Affected Concrete Structures.

As to how the new information is relevant to the proposed contention and material to its disposition, Friends/NEC addresses the documents seriatim:

- ML12242A370, "Request for Deviation from the Reactor Oversight Process Action Matrix to Provide Increased Oversight of the Alkali-Silica Reaction Issue at Seabrook" (Added To ADAMS September 14, 2012) EXHIBIT ONE

This is a September 5, 2012 NRC inter-office memorandum to R. W. Borchardt, Executive Director for Operations from William M. Dean, Regional Administrator, Region I, requesting "Deviation From The Reactor Oversight Process Action Matrix To Provide Increased Oversight Of The Alkali-Silica Reaction Issue At Seabrook

> Specifically, the staff requests to conduct additional inspections and assessments associated with the degradation of concrete due to alkali-silica reaction (ASR) in safety-related concrete structures at Seabrook.
>
> The NRC staff needs to more thoroughly understand the ASR phenomenon and its long term impact on reinforced concrete structures at Seabrook in order to confirm the continued ability of safety related structures to perform their function. While resources for CAL follow-up are typically provided for in the ROP, the nature of this "first-of-a-kind" issue warrants additional inspection and assessment beyond that normally allocated by the ROP. The additional inspection samples as well as inspection and assessment resources will be used to: 1) inspect NextEra's completed and planned actions associated with the eleven CAL items; 2) evaluate the quality and applicability of results from the licensee's proposed large-scale concrete specimen testing; 3) provide support for the development of staff technical guidance; and, 4) continue to support communications and outreach activities for stakeholders.

It is clear that, as of this memorandum and three year's after the discovery of degraded concrete at Seabrook, NRC Staff has not been provided with enough information to be able to confirm if "safety-related structures will continue to perform their [safety] function.' The Staff is talking about the current license period; not the proposed period of extended operation. Thus, while expressing the need for more inspection time and extensive sample, the staff is expressing, based on information in hand, "zero" confidence in the proposed ASR Monitoring Program as an AMP. Further the staff anticipates evaluation of the "licensee's large-scale concrete specimen testing" The very word "testing" implies the potential of unanticipated results and begs the question of how completely informed and accurate were the assumptions underlying the formulation of the ASR monitoring program.

> Contractor expenditures for calendar year 2012 are expected to be $65,000. Projections for calendar year 2013 are approximately $32,500. These additional resources will be taken from resources already included in the Operating Reactors business line budget for fiscal year 2012 and the fiscal year 2013 budget request.
>
> The staff anticipates closure of the deviation memo when the NRC has concluded (1) that all Confirmatory Action Letter commitments have been satisfactorily completed and (2) an acceptable basis has been established to assure that the continued operability of concrete structures will be maintained. The status of the deviation memorandum will be reviewed every six months as part of the agency's Reactor Oversight Process.

It is plain that the Staff believes that it may take well into 2013 to be able to conclude that "...an acceptable basis has been established to assure that continued operability of concrete structures will be maintained..." Again, it is also quite clear that the licensee has not provided the staff with enough information to generate assurance that ASR-affected structures will not fail under the current license. It simply stands to reason that they are that much farther from assurance of operability through the proposed monitoring program or through anything else for the proposed period of extended operation.

And

- ML121250588 "Seabrook Alkali-Silica Reaction Issue Technical Team Charter" (Added To ADAMS September 14, 2012)

EXHIBIT TWO

> ln addition to the engineering evaluations ,assessments, and operability determinations completed by NextEra Energy Seabrook, LLC(NextEra) for the concrete structures observed to be impacted by ASR, NextEra has initiated an interim monitoring program and an extensive research and testing project to assist in better understanding the specific causes and effects of ASR at Seabrook Station. The results of this project are envisioned to shape the long term resolution and corrective actions of this issue at the station.

The "results of project" might well be "...envisioned to shape the long term resolution and corrective actions of this issue at the station," as a more complete, "understanding [of] the

specific causes and effects of ASR at Seabrook Station" is essential to the formulation of a credible ASR monitoring program or AMP that will not take effect for twenty years..

> Objectives:
>
> To review and assess the adequacy of the prompt operability determinations and supporting engineering evaluation of Seabrook Station concrete structures currently identified to be impacted by ASR.
>
> To review and assess the adequacy of the interim monitoring program that is used to help assess the current applicability of the latest operability determinations for the ASR affected structures until the final operability determination and its bases are complete.
>
> To assess the adequacy of NextEra's root cause evaluation and corrective actions, initial building assessments, and associated integrated corrective action plan for the project.
>
> To ensure adequacy of technical methods used by the licensee in determining adequate margin (including testing, sampling).
>
> To ensure that the licensee maintains compliance with its license as new information is obtained that may indicate a need for change, and to ensure a coordinated review of submittals made by the licensee regarding ASR.
>
> To ensure a coordinated review and assessment of the adequacy of the final operability determination and supporting engineering evaluation along with residual corrective actions.
>
> To coordinate the NRC staffs review of the adequacy of NextEra's completion of CAL items.
>
> To ensure coordination of long term aging management program issues related to the ASR.
>
> To ensure a coordinated review for all public and congressional inquiries related to ASR at Seabrook.
>
> Provide a recommendation for closure of CAL No. 1-2012-002.

Here, in the forgoing list, for the first time, NRC staff provides an extensive list of areas and issues surrounding ASR that remained open as of the date of this document, July 9, 2012.[4] The list reveals uncertainties about multiple aspects of going forward under the current license; all of which should have been resolved before filing the Seabrook LRA since NRC assumes substantial compliance with the CLB and therefore prohibits intervenors bringing contentions based on current plant condition or operations.

The justice of that notwithstanding, Friends/NEC begs NextEra and NRC Staff to be informed as to how the licensee can affirm, or the NRC can confirm, adequate protection of public health and safety for a program that will begin in 2032 when they cannot affirm or confirm

[4] The referenced document was dated July 9, 2012, but did not appear in ADAMS until September 14, 2012. It was not provided at any time in NRC Staff Disclosure.

adequate protection of public health and safety for a program intended to address the same issue for the intervening twenty years. It defies reason. Friends/NEC invites explanation as to how an adequate, effective ASR monitoring program or an ASR-affected structures aging management program can be created without the complete information that NRC and the licensee, according to the foregoing list, are still lacking. It defies reason.

Before NRC can certify that Seabrook is in substantial compliance with its CLB, and therefore entitled to a discrete LRA review of its proposed ASR Monitoring Plan, NextEra Seabrook must show and NRC must determine that Seabrook is in compliance with all applicable regulatory requirements, per EXHIBIT TWO, "NRC Team Charter," as follows:

> The regulatory requirements, applicable for the duration of the current 4O-year operating license pursuant to 10 CFR Part 50, and guidance applicable to addressing the ASR degradation of concrete in Other Seismic Category 1, structures at Seabrook, which includes the "B" Electrical Tunnel, can be found in the following regulations and regulatory documents.
>
> (1) 10 CFR 50.65, Maintenance Rule, as it relates to monitoring the performance and condition of structures, systems, or components (SSC) in a manner sufficient to provide reasonable assurance that these SSCs are capable of fulfilling their intended functions. When the performance or condition of an SSC does not meet established goals, appropriate conective action shall be taken'
> (2) 1O CFR Part 50, Appendix B, as it relates to the quality assurance criteria for nuclear power plants.
> (3) Criterion Xl, "Test Control," as it relates to establishing a test program to assure that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance limits contained in applicable design documents; and test results are documented and evaluated to assure that test requirements have been satisfied'
> (4) Criterion XVl, "Corrective Action," of 10 CFR Part 50, Appendix B, as it relates to implementing a corrective action program to assure that conditions/significant conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and non-conformances are promptly identified, cause addressed, and corrected.
> (5) 10 CFR Part 50, Appendix A, GDC 1, as it relates to structures, systems, and components being designed, fabricated, erected, and tested to quality standards commensurate with the importance of the safety function to be performed. Where generally recognized codes and standards are used, they shall be evaluated to determine applicability, adequacy, and sufficiency and shall be supplemented or

> modified as necessary to assure a quality product in keeping with the required safety function.
> (6) 10 CFR Part 50, Appendix A, GDC 2, as it relates to the design of the safety-related structures being able to withstand the most severe natural phenomena such as wind, tornadoes, floods, and earthquakes and the appropriate combination of all loads.
> (7) 10 CFR Part 50, Appendix A, GDC 4, as it relates to safety-related structures being appropriately protected against environmental and dynamic effects, including the effects of missiles, pipe whipping, and discharging fluids, that may result from equipment failures and from events and conditions outside the nuclear power unit.
> A-4
> Attachment
> (8) 10 CFR 50.59, as it relates to changes, tests, and experiments.
> (9) NUREG-0800, Standard Review Plan, Section 3.8.4 - Other Seismic Category 1 Structures
> (10) Regulatory Guide 1.160, Revision 2 (March 1997), Monitoring the Effectiveness of Maintenance at Nuclear Power Plants

and;

- Ml12250A707, "Requests for Additional Information for the Review of the Seabrook Station, License Renewal Application -Set 19" (Added to ADAMS September 17, 2012, EXHIBIT THREE, "2012-09-14 RAI"

"2012-09-14 RAI" provides a window on more narrowly drawn ASR characterization, monitoring, and mitigations issues technical issues and , by extension, illumines technical and practical problems with NextEra's proposed ASR monitoring program. The Friends/NEC new contention petition asserts that the scope of ASR degradation has not fully been determined and that periodic visual inspection of crack growth in selected areas and structures, as described by the proposed ASR monitoring program, is insufficient to determine either the extent or rate of progress of ASR. The NRC Staff RAI's focus on additional reasons why this is so.

> ...The applicant has indicated that the pattern cracking on containment may be indicative of ASR, however, by using the acceptance criteria for passive cracks defined in American Concrete Institute (ACI) 349.3R to justify that follow-up inspections will be performed, the applicant has concluded that further evaluation is not necessary. According to ACI 349.3R, concrete surfaces that have passive cracks less than 0.4 mm (15 mils) in maximum width are generally acceptable without further evaluation. Passive cracks are defined as those having an absence of recent growth and an absence of other degradation mechanisms at the crack. The cracks observed in the Containment Structure are indicative of ASR and considered active (not passive), meaning they grow over time, and can affect the structural integrity of the structure. According to ACI 349.3R, active cracking,

settlements, or deflections that are observed in a structure are unacceptable, need further technical evaluation, and should be treated because cracking damage can continue or intensify.

The staff is concerned that the applicant has not demonstrated that the pattern cracking on containment, which may be indicative of ASR, will be adequately managed during the period of extended operation. In addition, the staff is not clear if the Containment Building is within the scope of the ASR Monitoring Program, or how the pattern cracking on containment will be monitored and trended to demonstrate that the effects of aging will be adequately managed during the period of extended operation.

Request

a. Clarify whether or not the Containment Building is within the scope of the plant-specific ASR Monitoring Program.

b. If the Containment Building is within the scope of the plant-specific ASR Monitoring Program, clarify the following:

i. Whether the cracking index and individual crack width of the pattern cracking on the Containment Building will be monitored at the six month interval described in the May 16, 2012, submittal during the period of extended operation.

ii. If a structural evaluation will be performed in case the combined cracking index and or individual crack width exceeds the acceptance criteria of the ASR Monitoring Program.

The applicant in its letter dated May 16, 2012, submitted a plant specific ASR Monitoring Program, B.2.1.31A to augment the existing Structures Monitoring Program, B.2.1.31.

Element 4 -Detection of Aging Effects of the ASR Monitoring Program states that ASR is detected by visual inspections performed by qualified individuals. These individuals must either be a licensed Professional Engineer experienced in this area, or work under the direction of a licensed Professional Engineer. The applicant also states that to identify and verify the presence of ASR, the maximum crack width, a cracking index, and a description of the cracking including any visible surface discoloration are documented.

Issue

The staff is concerned that ASR visual examination, along with measurement of crack width and cracking index, will be used to rule out the presence of ASR in a concrete structure. Visual inspections of concrete structures may indicate the presence of ASR; however, further investigation (i.e. petrographic examination) must be conducted to confirm the absence of ASR.

Request

a. Clarify whether the ASR visual inspections will be used to rule out the presence of ASR in a concrete structure.

b. If so, what criteria and/or testing will be used to confirm the absence of ASR in those structures.

Element 6 -Acceptance Criteria of the ASR Monitoring Program states:

NextEra has performed a baseline inspection and ASR associated cracks have been evaluated and categorized. NextEra has assessed 131 accessible areas to date in this manner. The areas affected by ASR have been identified and assessed for apparent degradation from ASR, including estimation of in situ expansion. The results are presented in MPR-3727, Revision 0, *"Seabrook Station: Impact of AlkaliSilica Reaction on Concrete Structures and Attachments."* Based on site specific assessment and review of industry source documentation this report provides recommendations for screening thresholds used in the ASR Monitoring Program. Using these thresholds, ASR affected areas are screened and categorized for Qualitative or Quantitative Monitoring and Trending and Structural Evaluation. - 5

A Combined Cracking Index (CCI) of less than the 1.0 *mm/m* and Individual Crack Width of less than 1.0 mm can be deemed Acceptable with Deficiencies. Areas with deficiencies determined to be acceptable with further review are trended for evidence of further degradation.

Issue

The staff is concerned that the proposed CCI and Individual Crack Width criteria may not be adequate. The staff reviewed the following industry publications and found that detailed investigation and structural evaluation may be appropriate if the CCI is greater than 0.5 *mm/m* and/or an Individual Crack Width is greater than 0.20 mm for the nuclear power plant concrete structures that are important to safety and exposed to groundwater.

1. FHWA, "Report on the Diagnosis, Prognosis, and Mitigation of Alkali Silica Reaction (ASR) in Transportation Structures"

2. Institution of Structural Engineers, "Structural Effects of Alkali-Silica Reaction -Technical Guidance Appraisal of Existing Structures"

3. French National Rule for Inservice Inspection of Nuclear Power Plant Structures

4. Oak Ridge National Laboratory letter Report NRC/L TR-9514, "In-Service inspection Guidelines for Concrete Structures in Nuclear Power Plants"

Request

Provide the basis for using a CCI of 1.0 *mm/m* or less and Individual Crack Width 1.0 mm or less as Acceptable with Deficiencies without performing detailed investigation and structural evaluation.

The applicant in its letter dated May 16, 2012, submitted a plant specific ASR Monitoring Program, B.2.1.31A to augment the existing Structures Monitoring Program, B.2.1.31.

Element 5 -Monitoring and Trending of the ASR Monitoring Program states:

NextEra has performed a baseline inspection and ASR associated cracks have been evaluated and categorized. NextEra has assessed 131 accessible areas to date in this manner. The areas affected by ASR have been identified and assessed for apparent degradation from ASR, including estimation of in situ expansion. Monitoring of CI and Individual Crack Width of at least 20 areas identified in the baseline inspection as having the CCI will be performed at six month intervals. Measurement of Cracking Index and Individual Crack Width will be performed in the same areas as the baseline. Trend data from these follow-up inspections will be used in determining the progression of expansion and a basis for any change to the frequency of the inspection. -6

Issue

It is not clear to the staff why only 20 areas out of the 131 areas with ASR cracks have been selected for baseline inspection. The ASR affected areas are in different structures and ASR degradation may progress at different rates and at different times. It is not clear to the staff how the aging of the structures due to ASR, in the remaining 111 areas, will be managed without any inspection and trending data. There is a potential that some of the remaining 111 areas may degrade at a faster rate than the 20 areas that are selected for baseline inspection. The crack index (CI) and Individual Crack Width need to be monitored in all ASR affected areas to establish a trend over time. In addition, it is not clear how the progression rate will be related to a change in frequency of inspection.

Request

a. Explain why only 20 areas out of 131 areas associated with ASR cracks have been identified for baseline inspection.

b. Provide clarification as to how the aging of the structures due to ASR in the remaining 111 areas will be managed without any inspection.

c. Clarify whether the trend data will be used to decrease the inspection frequency and if so, describe the basis for any change in inspection frequency.

d. When the total number of affected areas increases, describe if the number of areas being monitored will change and provide the technical justification for this approach.

This RAI and all of its relevant statements of Staff observations, evaluations, and questions are much too long to insert here , but Friends/NEC has added the complete RAI as, EXHIBIT THREE, for the convenience of the parities; with the advice that Friends/NEC intends to rely on this document in its entirety if the proposed new contention is accepted.

and;

- Letter, September 13, 2012, Sandra Gavutis, Co-Director, C-10 Research and Education Foundation, Newburyport, Ma and Dr. David Wright, Executive Director Global Security Program Union of Concerned Scientists, Cambridge, MA to William M. Dean, Regional Administrator Region 1, USNRC King of Prussia, PA,

This letter affirms Friends/NEC's concern that without a thorough ASR extent-of-condition review, including, for example, examination of identical source, identical mix,

and similar environment; contemporary and older concrete pours across the region, NextEra and NRC will be constructing monitoring and mitigation programs at least partially in the blind, as is the case in the current proposed NextEra ASR Monitoring Program.

> The occurrence of ASR induced concrete degradation requires an extent of condition investigation under Seabrook's current license and under NRC NUREG-1800 Section: 3.5.2.2.1.4. as ASR concrete degradation is evidenced both below and above grade in multiple safety related buildings.

The letter recounts the independent expert analysis and comments prepared under contract with the Union of Concerned Scientists by Paul Brown Ph.D., Professor of Ceramic Science and Engineering at Penn State University regarding the ASR situation at Seabrook. Dr. Brown, a principal in ChemHydration, LLC of State College, PA, has following the issue and reviewed the principal relevant documents[5].

> According to Paul Brown, an expert retained by Union of Concerned Scientists, it is critical to establish the extent to which ASR has affected the mechanical properties of the concrete.
>
> Because of a brackish water exposure coupled with the lack of detection of this water ingress for approximately 20 years, the chloride-induced corrosion of embedded steel cannot be excluded. Such corrosion it is far more likely if ASR induced cracking is occurring. Thus, a systematic conditional assessment to establish the locations where these degradation mechanisms are active should be carried out. In addition, a systematic sampling and testing should be carried out to determine the extent to which ASR has reduced the mechanical properties of the concrete or the extent to which corrosion has reduced the tensile capacity of the embedded steel.
>
> Professor Brown has stated that although NextEra's plan to utilize some non-standard tests may have merit, they are incomplete. In his opinion, NextEra must also systematically evaluate the concrete via petrography and physical testing of cores, and evaluate the expansive capacity of ASR based on ASTM standard tests as promulgated by ASTM Committee C-9 on Concrete and Aggregates.

[5] Dr. Brown's comments were not prepared for use in the proceeding and he has no connection to Friends/NEC. They are presented as the independent opinions of an authority as recounted in the C-10/UCS letter. Friends/NEC intends to use these comments to confirm and to a small degree augment basis for the contention and in this supplement document only.

> According to Brown, the interior space of containment should be surveyed and photo-documented, and the chemistry of the water entering this space should be tested to establish its alkali and chloride contents. In addition, the locations where standard ASME testing ultrasonic measurements were done should be mapped with respect to those locations where water invaded the dead space between the containment structures. This would assure that testing had been done at locations where the liner would be vulnerable to corrosion because it was in contact with up to 6 feet of groundwater since construction.
>
> According to Brown, degradation due to ASR is not a linear phenomenon, as there is some period during which the occurrence of ASR does not cause cracking and actually results in higher strength when compared to a control sample not experiencing ASR. But as the available local pore volumes become filled, cracking initiates. Crack formation and growth are not linear with time. In concrete restrained by reinforcement, mechanical testing of extracted concrete cores to establish compressive strengths and Young's moduli are appropriate.
>
> Paul Brown agrees with the NRC staff that visual examination of concrete cannot rule out ASR degradation.

The next-to-the-last item attributed to Dr. Brown affirms Friends/NEC's concern that there appears to be nothing tying the six-month visual inspection interval in the proposed NextEra ASR monitoring program to real world experience; changing crack formation and growth rates do not call for static inspection intervals; especially twenty years out. The last item points, as Friends/NEC and NRC Staff have previously asserted to a fatal weakness in relying on monitoring by visual inspection alone; visual inspection cannot rule out ASR degradation.

IV. CONCLUSION

For all of the Reasons stated above and for its obvious value in further explaining Friends/NEC's basis for its proposed new contention, Friends/NEC respectfully requests that the Board admit the Supplement and consider its representations in weighing admission of the proposed new contention.

V. CONSULTATION CERTIFICATION PURSUANT TO 10 C.F.R. § 2.323(b)

Representative for Friends/NEC, Raymond Shadis, hereby certifies, we have consulted with and attempted to obtain consent of counsel for the applicant and the NRC for this Motion. We did not however reach accord. Counsel for the applicant stated that NextEra would oppose the motion. Counsel for the NRC staff stated that a response would be forthcoming upon review of the entire motion.

Executed in Accord with 10 CFR 2.304(d)

Raymond Shadis
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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
NextEra Energy, LLC	)	Docket Nos. 50-443
	)	
(Seabrook Station, Unit 1)	)	ASLBP No. 10-906-02-LR-BD01

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing SUPPLEMENT TO FRIENDS OF THE COAST AND NEW ENGLAND COALITION'S MOTION FOR LEAVE TO FILE A NEW CONTENTION CONCERNING NEXTERA ENERGY SEABROOK'S AMENDMENT OF ITS AGING MANAGEMENT PROGRAM FOR SAFETY-RELATED CONCRETE STRUCTURES dated September 21, 2012, has been served upon the following by the Electronic Information Exchange, this 21st day of September, 2012:

Executed in Accord with 10 CFR 2.304(d)

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