

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Ronald M. Spritzer, Chairman
Nicholas G. Trikouros
Dr. Sekazi K. Mtingwa

In the Matter of

NEXTERA ENERGY SEABROOK, LLC

(Seabrook Station, Unit 1)

Docket No. 50-443-LA-2

ASLBP No. 17-953-02-LA-BD01

August 27, 2019

MEMORANDUM

(Regarding Pre-filed Exhibits)

On August 12, 2019, the Board issued an order to schedule a prehearing teleconference with all the parties to discuss logistics for the evidentiary hearing planned for September 24–27, 2019. The order contained a list of discussion topics and stated that the Board would prepare a final exhibit list identifying all pre-filed testimony and other exhibits (including revised exhibits) that have been filed by the participants.¹ During the prehearing teleconference on August 26, 2019, the Board again stated that it would prepare a final exhibit list. This list is now attached as Appendix A.

The Board also notes that numerous prefiled exhibits contain references to documents that have not been filed in the evidentiary record. If any party desires the documentary material, website material, or incorporated reports cited in these pre-filed exhibits to be considered part of the evidentiary record, the party should promptly provide a PDF evidentiary exhibit of each item,

¹ Order (Scheduling Prehearing Teleconference) at 3 (Aug. 12, 2019) (unpublished).

or the relevant portions thereof, with an appropriate exhibit cover sheet and an updated exhibit list.

FOR THE ATOMIC SAFETY
AND LICENSING BOARD

/RA/

Ronald M. Spritzer, Chairman
ADMINISTRATIVE JUDGE

Rockville, Maryland
August 27, 2019

APPENDIX A: LIST OF PREFILED EXHIBITS

IN THE MATTER OF NEXTERA ENERGY SEABROOK, LLC, (SEABROOK STATION, UNIT 1)
DOCKET NO. 50-443-LA-2²

NRC Staff Exhibits	
Exhibit Number	Title
NRC-001	Staff Testimony.
NRC-002	Statement of Professional Qualifications of Angela Buford.
NRC-003	Statement of Professional Qualifications of Bryce Lehman.
NRC-004	Statement of Professional Qualifications of George Thomas.
NRC-005	Jacob Philip Testimony.
NRC-006	Statement of Professional Qualifications of Jacob Philip.
NRC-007	Seabrook Station Updated Final Safety Analysis Report (UFSAR), Chapter 3, "Design of Structures, Components, Equipment and Systems," Revision 18 (October 2017).
NRC-008	Enclosure 3 to Original LAR, MPR- 4273, Revision 0, "Seabrook Station - Implications of Large-Scale Test Program Results on Reinforced Concrete Affected by Alkali-Silica Reaction" (July 2016).
NRC-009	Enclosure 6 to Original LAR, MPR- 4273, Revision 0, "Seabrook Station - Implications of Large-Scale Test Program Results on Reinforced Concrete Affected by Alkali-Silica Reaction" (July 2016) (proprietary).
NRC-010	Letter from Ralph A. Dodds III, NextEra, to NRC Document Control Desk, "Seabrook Station, Supplement to License Amendment Request 16-03, Revise Current Licensing Basis to Adopt a Methodology for the Analysis of Seismic Category I Structures with Concrete Affected by Alkali-Silica Reaction" (Sept. 30, 2016).
NRC-011	Enclosure 3 to Sept. 2016 LAR Supplement, MPR-4153, Revision 2, "Seabrook Station – Approach for Determining Through-Thickness Expansion from Alkali-Silica Reaction" (July 2016).

² Exhibits containing proprietary information are so identified and highlighted in bold.

NRC-012	Enclosure 5 to Sept. 2016 LAR Supplement, Revision 2, MPR-4153, Rev. 2, “Seabrook Station – Approach for Determining Through Thickness Expansion from Alkali- Silica Reaction” (July 2016) (proprietary).
NRC-013	Letter from Eric McCartney, NextEra, to NRC Document Control Desk, “Seabrook Station, Response to Request for Additional Information Regarding License Amendment Request 16-03 Related to Alkali-Silica Reaction” (Oct. 3, 2017).
NRC-014	Letter from Eric McCartney, NextEra, to NRC Document Control Desk, “Seabrook Station, Response to Request for Additional Information Regarding License Amendment Request Related to Alkali-Silica Reaction” (Dec. 11, 2017).
NRC-015	Letter from Christopher Domingos, NextEra, to NRC Document Control Desk, “Seabrook Station, Response to Request for Additional Information Regarding License Amendment Request 16-03” (June 7, 2018).
NRC-016	Letter from Eric McCartney, NextEra, to NRC Document Control Desk, “Seabrook Station Revised Structures Monitoring Aging Management Program” (May 18, 2018).
NRC-017	Letter from Tam Tran, NRC, to Dean Curtland, NextEra, “Alkali Silica Reaction Monitoring Aging Management Program Audit Report Regarding the Seabrook Station, Unit 1, License Renewal (TAC No. ME4028)” (Dec. 17, 2015).
NRC-018	Seabrook ASR-Monitoring Program Audit Report, Enclosure to Dec. 17, 2015 Letter to NextEra (undated).
NRC-019	Confirmatory Action Letter, Seabrook Station, Unit 1 – Information Related to Concrete Degradation Issues (May 16, 2012).
NRC-020	Letter from Richard A. Plasse, NRC, to Paul Freeman, NextEra, “Audit Report Regarding the Seabrook Station License Renewal Application (TAC Number ME4028)” (Mar. 21, 2011).
NRC-021	Letter from Arthur L. Burritt, NRC, to Paul Freeman, NextEra, “Seabrook Station, Unit No. 1 - NRC Integrated Inspection Report 05000443/2011002” (May 12, 2011).
NRC-022	Letter from Richard J. Conte, NRC, to Paul Freeman, NextEra, “NextEra Energy Seabrook - NRC License Renewal Inspection Report 05000443/2011007” (May 23, 2011).
NRC-023	Letter from Arthur L. Burritt, NRC, to Paul Freeman, NextEra, “Seabrook Station, Unit No. 1 - NRC Integrated Inspection Report 05000443/2011003” (Aug. 12, 2011).
NRC-024	Letter from Christopher G. Miller, NRC, to Paul Freeman, NextEra, “Seabrook Station - NRC Inspection Report 05000443/2011010 Related to Alkali- Silica Reaction Issue In Safety Related Structures” (Mar. 26, 2012).

NRC-025	Letter from Christopher G. Miller, NRC, to Kevin Walsh, NextEra, "Seabrook Station, Unit No. 1 – Confirmatory Action Letter Follow-up Inspection - NRC Inspection Report 05000443/2012009, Enclosure, Inspection Report No. 0500044312012009" (Dec. 3, 2012).
NRC-026	Letter from Raymond K. Lorson, NRC, to Kevin Walsh, "Seabrook Station, Unit No. 1 - Confirmatory Action Letter Follow-up Inspection - NRC Inspection Report 05000443/2012010" (Aug. 9, 2013).
NRC-027	Letter from Glenn T. Dentel, NRC, to Kevin Walsh, NextEra, "Seabrook Station, Unit No. 1 - NRC Integrated Inspection Report 05000443/2013005" (Jan. 30, 2014).
NRC-028	Letter from Glenn T. Dentel, NRC, to Kevin Walsh, NextEra, "Seabrook Station, Unit No. 1 - NRC Integrated Inspection Report 05000443/2014002" (May 6, 2014).
NRC-029	Letter from Glenn T. Dentel, NRC, to Dean Curtland, NextEra, "Seabrook Station, Unit No. 1 - NRC Integrated Inspection Report 05000443/2014003" (Aug. 5, 2014).
NRC-030	Letter from Glenn T. Dentel, NRC, to Dean Curtland, NextEra, "Seabrook Station, Unit No. 1 - NRC Integrated Inspection Report 05000443/2014005," (Feb. 6, 2015).
NRC-031	Letter from Glenn T. Dentel, NRC, to Dean Curtland, NextEra, "Seabrook Station, Unit No. 1 - NRC Integrated Inspection Report 05000443/2015002," (Aug. 5, 2015).
NRC-032	Letter from Fred L. Bower, III, NRC, to Dean Curtland, NextEra, "Seabrook Station, Unit No. 1 - NRC Integrated Inspection Report 05000443/2015004 and Independent Spent Fuel Storage Installation Report No. 07200063/2015001" (Feb. 12, 2016).
NRC-033	Letter from Mel Gray, NRC, to Dean Curtland, NextEra, "Seabrook Station, "Seabrook Station - Inspection Report 05000443/2016008 Related to Alkali-Silica Reaction Affects On Safety-Related Concrete Structures And Notice Of Violation," (May 6, 2016).
NRC-034	Letter from to Eric McCartney, NextEra, "Seabrook Station, Unit No. 1 – Integrated Inspection Report 05000443/2016002," (Aug. 5, 2016).
NRC-035	Letter from Fred L. Bower, III, NRC, to Eric McCartney, NextEra, "Seabrook Station, Unit No. 1 – Integrated Inspection Report 05000443/2016004," (Feb. 8, 2017).
NRC-036	Letter from Fred L. Bower, III, NRC, to Mano Nazar, NextEra, "Seabrook Station, Unit No. 1 – Integrated Inspection Report 05000443/2017002," encl. at 31–32 (Aug. 14, 2017).
NRC-037	Letter from Fred L. Bower, III, NRC, to Mano Nazar, NextEra, "Seabrook Station, Unit No. 1 – Integrated Inspection Report 05000443/2017004," encl. at 24–27 (Feb. 12, 2018).

NRC-038	Letter from Fred L. Bower, III, NRC, to Mano Nazar, NextEra, "Seabrook Station, Unit No. 1 – Integrated Inspection Report 05000443/2018001," encl. at 8–9 (May 14, 2018).
NRC-039	Letter from Mel Gray, III, NRC, to Mano Nazar, NextEra, "Seabrook Station, Unit No. 1 – Integrated Inspection Report 05000443/2018011," (Aug. 10, 2018).
NRC-040	Letter from Fred L. Bower, NRC, to Mano Nazar, NextEra, "Seabrook Station, Unit No. 1 – Integrated Inspection Report 05000443/2018003," (Nov. 13, 2018).
NRC-041	Letter from Richard Plasse, NRC, to Kevin Walsh, NextEra, "Aging Management Program Audit Report Regarding the Seabrook Station License Renewal Application (TAC No. ME4028)" (Dec. 23, 2013).
NRC-042	Letter from Tam Tran, NRC, to Eric McCartney, NextEra, "Alkali Silica Reaction Monitoring Aging Management Program Audit Report Regarding the Seabrook Station," Unit 1, License Renewal (CAC No. ME4028) (Dec. 21, 2016).
NRC-043	Letter from Justin C. Poole, NRC, to Mano Nazar, NextEra, "Seabrook Station, Unit No. 1 - Site Visit Report Regarding Regulatory Audit for License Amendment Request Re: Alkali-Silica Reaction License Amendment Request and License Renewal Alkali-Silica Reaction Aging Management Program Review (CAC No. MF8260; EPID L- 2016-LLA-0007)" (July 26, 2017).
NRC-044	Letter from Justin C. Poole, NRC, to Mano Nazar, NextEra, "Seabrook Station, Unit No. 1 - Site Visit Report Regarding Regulatory Audit for License Amendment Request Re: Alkali-Silica Reaction License Amendment Request and License Renewal Alkali-Silica Reaction Aging Management Program Review (CAC No. MF8260; EPID L- 2016-LLA-0007)" (May 21, 2018).
NRC-045	Memorandum from Eric J. Leeds, NRR, and William M. Dean, Region 1, Seabrook Alkali-Silica Reaction Issue Technical Team Charter (July 9, 2012).
NRC-046	Summary of August 24, 2017, Meeting with NextEra Energy Regarding license amendment request on alkali silica reaction (CAC No. MF8260; EPID I-2016-Ila-0007) (Oct. 13, 2017).
NRC-047	Memorandum from James G. Danna, NRC, to Andrea D. Veil, NRC ACRS, "Seabrook Station, Unit No. 1 - Submission of Alkali-Silica Reaction License Amendment Request Draft Safety Evaluation to Support the Advisory Committee on Reactor Safeguards' Review of Seabrook License Renewal (CAC No. MF8260; EPID L-2016-LLA-0007)" (Sept. 28, 2018).
NRC-048	Letter from Michael Corradini, Chairman, ACRS, to Kristine L. Svinicki, Chairman, NRC, "Seabrook Station Unit 1 License Renewal Application: Review of Licensee Program Addressing Alkali-Silica Reaction" (Dec. 14, 2018).

NRC-049	American Concrete Institute (ACI) Standard 318-71, Building Code Requirements for Reinforced Concrete (1971).
NRC-050	Section III, Division 2, of the 1975 Edition of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) for containment.
NRC-051	Report of ACI-ASCE (American Society of Civil Engineers) Committee 326, "Shear and Diagonal Tension" (1962).
NRC-052	ACI 408R-03, "Bond and Development of Straight Reinforcing Bars in Tension" (effective Sept. 24, 2003) (reapproved 2012).
NRC-053	Letter from Public Service Company of New Hampshire to NRC Region I, Office of Inspection and Enforcement re: Response to NRC IE Bulletin 79-02, "Pipe Support Base Plate Designs Using Concrete Expansion Anchor Bolts," Revision 2, November 8, 1979 (Jan 3. 1980).
NRC-054	NUREG/CR-5563, "A Technical Basis for Revision to Anchorage Criteria," March 1999.
NRC-055	ACI 349-13, "Code Requirements for Nuclear Safety-Related Concrete Structures and Commentary" 2013.
NRC-056	Madhu M. Karthik, et. al., "Experimental Behavior of Large Reinforced Concrete Specimen with Heavy ASR and DEF [delayed ettringite formation] Deterioration," J. Struct. Eng. (2018) (published online May 31, 2018).
NRC-057	M. Kathleen Eck Olave, et. al., "Performance of RC Columns Affected by ASR. II: Experiments and Assessment," Vol. 20. ASCE J. of Bridge Eng'g (March 2015) (published online June 12, 2014).
NRC-058	F. Habibi, et. al., "Alkali Aggregate Reaction in Nuclear Concrete Structures: Part 3: Structural Shear Wall Elements," Transactions, 23 rd Conference on Structural Mechanics in Reactor Technology (SMiRT-23), Manchester, UK, August 10-14, 2015, Division I, Paper ID 044.
NRC-059	ACI 349.3R, "Evaluation of Existing Nuclear Safety-Related Concrete Structures" (2002) (Reapproved 2010).
NRC-060	NRC Information Notice 2011-20: Concrete Degradation by Alkali-Silica Reaction (Nov. 18, 2011).
NRC-061	Standard Review Plan for Review of Subsequent License Renewal Applications for Nuclear Power Plants" (Final Report), NUREG-2192 (July 2017).
NRC-062	Interagency Agreement between NRC and NIST (Mar. 31, 2014).
NRC-063	Grant and Cooperative Agreement between NRC and Northwestern University (Sept. 30, 2014).

NRC-064	Sherry Berhoft, EPRI Senior Program Manager, NRC Commissioner Briefing on the Status of Subsequent License Renewal Preparations, "EPRI Long Term Operations: Research & Development for Aging Management" (Apr. 26, 2017).
NRC-065	Emma L. Wong & Sherry Bernhoft, "Overview of the Electric Power Research Institute's Research for Long Term Operations," 117 Transactions of the Am. Nuclear Soc'y, 648, 648 (Oct. 29–Nov. 2, 2017).
NRC-066	U.S. Department of Energy, "Light Water Reactor Sustainability Program — A Summary of Collaborative Research and Development Activities," INL/EXT-19-52416, Rev. 0 (Jan. 2019).
NRC-067	Organisation for Economic Cooperation and Development, Nuclear Energy Agency, "Final Report on the Phase 1 of the Assessment of Structures Subjected to Concrete Pathologies" NEA/CSNI/R(2016)13 (July 2017).
NRC-068	Organisation for Economic Cooperation and Development, Nuclear Energy Agency, "Phase II of the Assessment of Structures Subjected to Concrete Pathologies (ASCET): Final Report" NEA/CSNI/R(2018)4 (Jan. 21, 2019).
NRC-069	IRSN, ODOBA Research programs, (last update Aug. 2018), https://www.irsn.fr/EN/Research/Research-organisation/Research-programmes/Odoba-project/Pages/ODOBA.aspx .
NRC-070	"Research Activities FY 2018-2020," NUREG-1925, Rev. 4 (Mar. 2018).
NRC-071	NUREG/CR-7153, "Expanded Materials Degradation Assessment (EMDA), Volume 4: Aging of Concrete and Civil Structures" (Oct. 2014).
NRC-072	R. Park and T. Paulay, "Reinforced Concrete Structures" (John Wiley & Sons, Inc. 1975).
NRC-073	David Darwin, Charles W. Dolan, and Arthur H. Nilson, "Design of Concrete Structures" (McGraw Hill, Inc., 15th Ed. 2016).
NRC-074	Stéphane Multon, et. al., "Flexural Strength of Beams Affected by ASR," 12th International Conference on Alkali-Aggregate Reaction, Beijing, China (2004).
NRC-075	Dean J., Deschenes, et. al., "ASR/DEF-Damaged Bent Caps: Shear Tests and Field Implications," Technical Report No. 12-8XXIA006 summarizing work conducted for the Texas Department of Transportation at Ferguson Structural Engineering Laboratory, The University of Texas at Austin (August 2009).
NRC-076	Canadian Standards Association (CSA) A864-00, "Guide to the Evaluation and Management of Concrete Structures Affected by Alkali-Aggregate Reaction" (Feb. 2000) (Reaffirmed 2005).

NRC-077	Geoffrey E. Blight and Mark G. Alexander, "Alkali-Aggregate Reaction and Structural Damage to Concrete - Engineering Assessment, Repair and Management," (CRC Press Taylor & Francis Group, 2011).
NRC-078	Letter from Paul O. Freeman, NextEra, to NRC, "Seabrook Station Response to Confirmatory Action Letter" (May 24, 2012).
NRC-079	Enclosure 2 to SBK-L-12106, "The Evaluation, Impact of ASR on Concrete Structures and Attachments," (May 2012) (Interim Structural Assessment).
NRC-080	Memorandum from John G. Lamb, NRC, to Meena Khanna, NRC, Forthcoming April 23, 2012 Meeting with NextEra Energy Seabrook, LLC (NextEra) Regarding Seabrook Station Concrete Degradation (Mar. 23, 2012).
NRC-081	Letter from Paul O. Freeman, NextEra, to NRC, "Seabrook Station Actions for Resolution of Alkali Silica Reaction (ASR) Issues" (May 3, 2012).
NRC-082	Letter from Paul O. Freeman, NextEra, to NRC, "Seabrook Station Supplement to Actions for Resolution of Alkali Silica Reaction (ASR) Issues" (May 10, 2012).
NRC-083	Memorandum from William M. Dean, NRC, to R.W. Borchardt, NRC, "Request for Deviation from the Reactor Oversight Process Action Matrix to Provide Increased Oversight of the Alkali-Silica Reaction Issue at Seabrook" (Sept. 5, 2012).
NRC-084	Letter from Darrell J. Roberts, NRC, to Kevin Walsh, NextEra, "Deviation from the Reactor Oversight Process Action Matrix for Seabrook Station, Unit No. 1" (Sept. 12, 2012).
NRC-085	Letter from William M. Dean, NRC, Kevin Walsh, NextEra, "Closure of Confirmatory Action Letter 1-12-002, Seabrook Station, Unit 1" (Oct. 9, 2013).
NRC-086	Letter from Darrell J. Roberts, NRC, to Kevin Walsh, NextEra, "Mid-cycle Performance Review and Inspection Plan – Seabrook Station, Unit No. 1 (Report 05000443/2013006)," (Sept. 3, 2013).
NRC-087	Email from Justin Poole, NRC, to Kenneth Browne, NextEra, "Audit Plan Regarding Seabrook ASR License Amendment Review," (Jan. 13, 2017).
NRC-088	Regulatory Guide (RG) 1.29, Seismic Design Classification for Nuclear Power Plants (July 2016).
NRC-089	Enclosure 1 to Original LAR, NextEra Energy Seabrook's Evaluation of the Proposed Change Including Attachment 1 Markup of UFSAR Pages (proprietary).

NextEra Exhibits	
Exhibit Number	Title
NER-001	Testimony of NextEra Witnesses Michael Collins, John Simons, Christopher Bagley, Oguzhan Bayrak, and Edward Carley (“MPR Testimony”).
NER-002	MPR Testimony – Attachment 1 – Glossary.
NER-003	MPR Testimony – Attachment 2 – Proprietary Appendix.
NER-004	Testimony of NextEra Witnesses Said Bolourchi, Glenn Bell, and Matthew Sherman (“SGH Testimony”).
NER-005	NextEra Exhibit List.
NER-006	Michael Collins Biography.
NER-007	Seabrook Structures Monitoring Program Manual, Rev. 7 (proprietary).
NER-008	John Simons <i>Curriculum Vitae</i> .
NER-009	Chris Bagley <i>Curriculum Vitae</i> .
NER-010	Dr. Oguzhan Bayrak <i>Curriculum Vitae</i> .
NER-011	Edward Carley Resume.
NER-012	The Institution of Structural Engineers, “Structural Effects of Alkali-Silica Reaction” (July 1992).
NER-013	U.S. Department of Transportation, Federal Highway Administration, “Report on the Diagnosis, Prognosis, and Mitigation of Alkali-Silica Reaction (ASR) in Transportation Structures” (FHWA-HIF-09-004) (Jan. 2010).
NER-014	NUREG-2191, “Generic Aging Lessons Learned for Subsequent License Renewal (GALL-SLR) Report,” Vol. 2 (July 2017) [Cover and Section X.M1].
NER-015	MPR-3848, Rev. 0 “Seabrook Station, Approach for Shear and Reinforcement Anchorage Testing of Concrete Affected by Alkali-Silica Reaction” (Apr. 2013) (FP100818) (proprietary).

NER-016	Allford, M., "Expansion Behavior of Reinforced Concrete Elements Due to Alkali-Silica Reaction" (Aug. 2016).
NER-017	EPRI Report 3002013192, "Evaluation of Laboratory Tests to Detect Up-to-Date Expansion and Remaining Expansion in Concrete Structures Affected by Alkali-Silica Reaction" (Oct. 15, 2018).
NER-018	MPR-3727, Rev. 1, "Seabrook Station: Impact of Alkali-Silica Reaction on Concrete Structures and Attachments" (Jan. 2014) and NextEra Supplements I-V Thereto (FP100716, Rev. 4).
NER-019	Bayrak, O., "Structural Implications of ASR; State of the Art" (Feb. 2, 2012) (FP100697) (proprietary).
NER-020	MPR 0326-0062-88, Rev. 2, "Initial Expansion Assessment of ASR Affected Reinforced Concrete Structures at Seabrook Station" (Mar. 2018) (FP101070, Rev. 1) (proprietary).
NER-021	MPR-4231, Rev. 0, "Instrumentation for Measuring Expansion in Concrete Affected by Alkali-Silica Reaction" (Oct. 2015) (FP100972) (proprietary).
NER-022	MPR-4262, "Shear and Reinforcement Anchorage Testing of Concrete Affected by Alkali- Silica Reaction," Vol. I, Rev. 1 (July 2016) & Vol. II, Rev. 0 (Jan. 2016) (FP100994) [Main Report & Apps. E & G] (proprietary).
NER-023	MPR-3722, Rev. 2, "Strength Testing of Anchors in Concrete Affected by Alkali-Silica Reaction" (Jan. 2016) (FP100718, Rev. 1) [Main Report & App. A] (proprietary).
NER-024	MPR-4247, Rev. 0 "Commercial Grade Dedication Report for Seabrook ASR Anchor Testing (Block Series and Girder Series Phase 2)" (Dec. 2015) (FP100986) [Main Report & Apps. A & B] (proprietary).
NER-025	MPR-4259, "Commercial Grade Dedication Report of Seabrook ASR Shear, Reinforcement Anchorage and Instrumentation Testing" (Jan. 2016) [Main Report, App. B, & Pages D-1745, D-2615 to 16, F-9474, G-14, and G-18 to 19] (proprietary).
NER-026	MPR-3757, Rev. 4, "Shear and Reinforcement Anchorage Test Specimen Technical Evaluation" (May 2014) (FP100760) (proprietary).
NER-027	Saouma, V., "Benchmark Problems for AAR FEA Code Validation" (Aug. 4, 2017).
NER-028	SG&H Report 110594-RPT-02, Rev. 1, "Damage Rating Index and ASR Rating" (Feb. 10, 2012) (FP100702).
NER-029	EPRI Report 3002013190, "Modeling Concrete Structures Affected by Alkali Silica Reaction: Hydro-Quebec Approach for Hydraulic and Nuclear Power Plants" (Oct. 15, 2018).

NER-030	Giannini, E., "Evaluation of Concrete Structures Affected by Alkali-Silica Reaction and Delayed Ettringite Formation" (2012).
NER-031	Said Bolourchi <i>Curriculum Vitae</i> .
NER-032	Glenn Bell <i>Curriculum Vitae</i> .
NER-033	Matthew Sherman <i>Curriculum Vitae</i> .
NER-034	ASCE Standard ASCE/SEI 7-16, "Minimum Design Loads and Associated Criteria for Buildings and Other Structures" (2016) [Cover & Page 1].
NER-035	U.S. Department of Commerce, National Bureau of Standards, NBS Special Publication 577, "Development of a Probability Based Load Criterion for American National Standard A58" (1980).
NER-036	ASCE Standard ASCE/SEI 4-16, "Seismic Analysis of Safety-Related Nuclear Structures" (2016) [Cover & Pages 9-11, 23].
NER-037	Esposito, R., and Hendriks, M.A.N., "Literature Review of Modelling Approaches for ASR in Concrete: A New Perspective," EUROPEAN JOURNAL OF ENVTL. & CIVIL ENG'G (2017).
NER-038	Gocevski, V., "Pathologies/Degradation Mechanisms Experienced by Hydro-Quebec During the Evaluation of Gentilly-2 NPP," Report Submitted to ASCET, (June 2015).
NER-039	Neville, A.M., "Properties of Concrete," 5th Edition, Pearson Education Limited; Harlow, Essex, England, 2012 [Cover Pages & Pages 426-27, 436-37, 444-45].
NER-040	J.J. Brooks, <i>Accuracy of Estimating Long-Term Strains in Concrete</i> , 36 Magazine of Concrete Research 127, 131-45 (June 1984).
NER-041	Mijnsbergen, J. and Reinhardt, H. W., "Long-Time Creep and Expansion Behavior of Concrete in a Marine Environment," 109 American Concrete Institute Special Publication 599-624 (SP 109-27) (1994).
NER-042	G.E. Troxell, et al., <i>Long-Time Creep and Shrinkage Tests of Plain and Reinforced Concrete</i> , 1958 Proceeding of the American Society for Testing and Materials 1101-20.
NER-043	NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition," Chapter 3 – Design of Structures and Components, Equipment, and Systems § 3.7.2, Rev. 4 (Sept. 2013).
NER-044	Seabrook Station Unit 1, Updated Final Safety Analysis Report (UFSAR) (Rev. 19) [§ 2.5.2.5 only].
NER-045	MPR-4286, Rev. 0, "Supplemental Commercial Grade Dedication

	Report for Seabrook ASR Test Programs” (Mar. 2016) (FP101003) (proprietary).
NER-046	Seabrook Mechanical Maintenance Procedure MS0517.51, “Installation of Geokon Snap-Ring Borehole Extensometers,” Rev. 0 (Feb. 2016) [Cover & Pages 13-19].
NER-047	N. Ezell et al., “Experimental Collaboration for Thick Concrete Structures with Alkali-Silica Reaction” (2018).
NER-048	L. Phan, “Structural Performance of NPP Concrete Structures Affected by Alkali-Silica Reaction (ASR),” Slides for NRC Regulatory Information Conference Session TH27 (2018).

Intervenor C-10 Exhibits	
Exhibit Number	Title
INT-001-R	Pre-filed Testimony of Victor E. Saouma, Ph.D. Regarding Scientific Evaluation of NextEra’s Aging Management Program for Alkali-Silica Reaction at the Seabrook Nuclear Power Plant - CORRECTED JUNE 20, 2019 (proprietary).
INT-002	Summary of Testimony of Victor E. Saouma, Ph.D. Regarding Scientific Evaluation of NextEra’s Aging Management Program for Alkali-Silica Reaction at the Seabrook Nuclear Power Plant (Non-Proprietary Version).
INT-003	Curriculum Vitae, Dr. Victor E. Saouma.
INT-004	Grant Award, Experimental and Numerical Investigation of Alkali Silica Reaction in Nuclear Reactors (2014).
INT-005	Final (Public) Summary Report, Experimental and Numerical Investigation of Alkali Silica Reaction in Nuclear Reactors, Grant No.: NRC-HQ-60-14-G-0010 (Oct. 2014 - Dec. 2017).
INT-006	Declaration of Dr. Victor E. Saouma, Ph.D. (Feb. 12, 2019).
INT-007	Saouma, Review of Selected Documents Pertaining to the Structural Evaluation of Seabrook Nuclear Power Plant (Feb. 12, 2019) (proprietary).
INT-008-R	Summary: Review of Selected Documents Pertaining to the Structural Evaluation of Seabrook Nuclear Power Plant (Feb. 12, 2019).
INT-009	Reply Declaration of Victor E. Saouma, Ph.D. (March 1, 2019).
INT-010	Seabrook, License Amendment Request 16-03 - Revise Current Licensing Basis to Adopt a Methodology for the Analysis of Seismic

	Category I Structures with Concrete Affected by Alkali- Silica Reaction (August 1, 2016).
INT-011	NextEra Energy's Evaluation of the Proposed Change Including Attachment 1 Markup of UFSAR Pages (Proprietary) (Enclosure 1 to Letter SBK-L-16071).
INT-012	MPR-4288, Rev. 0, "Seabrook Station: Impact of Alkali-Silica Reaction on Structural Design Evaluations (July 2016) (Non-proprietary version) (Enclosure 2 to Letter SBK-L-16071).
INT-013	SG&H Report 160268-R-01, Rev. 0, Development of ASR Load Factors for Seismic Category I Structures (Including Containment) at Seabrook Station, Seabrook, NH (July 2016) (Enclosure 4 to Letter SBK-L-16071).
INT-014	MPR-4288, Rev. 0, "Seabrook Station: Impact of Alkali-Silica Reaction on Structural Design Evaluations (July 2016) (Enclosure 2 to Letter SBK-L-16071) (Proprietary).
INT-015	Simpson Gumpertz & Heger, Inc., "Evaluation and Design Confirmation of As-Deformed CEB, 150252-CA-02," Revision 0, July 2016 (Seabrook FP#100985) Enclosure 2 to Letter SBK-L-16153, re: Seabrook Station (Sept. 30, 2016).
INT-016	Revised Seabrook Station License Renewal Application Updated Final Safety Analysis Report Sections A.2.1.31 for Structures Monitoring, A.2.1.31A for Alkali-Silica Reaction and A.2.1.3b for Building Deformation (Enclosure 1 to Letter SBK-L-18072 re: Seabrook Station Revised Structures Monitoring Aging Management Program (May 18, 2018).
INT-017	Revised Seabrook Station License Renewal Application Appendix B Sections B.2.1.31 for Structures Monitoring, B.2.1.31A for Alkali-Silica Reaction and B.2.1.3b for Building Deformation (Enclosure 2 to Letter SBK-18072).
INT-018-R	MPR-4153, Revision 3, Seabrook Station-Approach for Determining Through-Thickness Expansion from Alkali-Silica Reaction (Sept. 2017) (Non-proprietary version) (Enclosure 4 to Letter SBK-18072).
INT-019-R	MPR-4273, Rev. 1, Seabrook Station - Implications of Large-Scale Test Program Results on Reinforced Concrete Affected by Alkali-Silica Reaction (July 2016) (Non-proprietary version) (Enclosure 5 to Letter SBK-18072).
INT-020	MPR-4153, Revision 3, Seabrook Station-Approach for Determining Through-Thickness Expansion from Alkali-Silica Reaction (Sept. 2017) (Proprietary version) (Enclosure 6 to Letter SBK-18072).
INT-021	MPR-4273, Rev. 1, Seabrook Station - Implications of Large-Scale Test Program Results on Reinforced Concrete Affected by Alkali-Silica Reaction (March 2018) (Proprietary version) (Enclosure 7 to Letter SBK-18072).
INT-022	Simpson Gumpertz & Heger Document No. 170444-MD-01, Rev. 1, "Methodology for the Analysis of Seismic Category I Structures with

	Concrete Affected by Alkali-Silica Reaction," for Seabrook Station (Enclosure 3 to Letter SBK-L-18074, re: Seabrook Station, Response to Request for Additional Information Regarding License Amendment Request 1603) (June 7, 2018).
INT-023	Simpson Gumpertz & Heger Document No. 170444-L-003 Rev. 1, Response to RAI-D8-Attachment 1 Example Calculation of Rebar Stress For a Section Subjected to Combined Effect of External Axial Moment and Internal ASR (Enclosure 4 to Letter SBK-L-18074).
INT-024	NRC Safety Evaluation Related to Amendment No. 159 to Facility Operating License No. NPF-86 (March 11, 2019).
INT-025	NRC Safety Evaluation Related to Amendment No. 159 to Facility Operating License No. NPF-86 (March 11, 2019) (proprietary).
INT-026	Bayrak, Structural Assessment of Seabrook (Apr. 23, 2012).
INT-027	Pre-filed Opening Testimony of Victor E. Saouma, Ph.D. Regarding Scientific Evaluation of NextEra's Aging Management Program for Alkali-Silica Reaction at the Seabrook Nuclear Power Plant. REDACTED VERSION FILED JUNE 26, 2019.
INT-028	Rebuttal Testimony of Victor E. Saouma, Ph. D Regarding Scientific Evaluation of NextEra's Aging Management Program for Alkali-Silica Reaction at the Seabrook Nuclear Power Plant (Proprietary).
INT-029	Summary of Testimony of Victor E. Saouma, Ph. D Regarding Scientific Evaluation of NextEra's Aging Management Program for Alkali-Silica Reaction at the Seabrook Nuclear Power Plant (Non-Proprietary Version).

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of)
)
NEXTERA ENERGY SEABROOK, LLC) Docket No. 50-443-LA-2
(Seabrook Station, Unit 1))
)
(License Amendment))

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing **MEMORANDUM (Regarding Pre-filed Exhibits)** have been served upon the following persons by Electronic Information Exchange.

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Dated at Rockville, Maryland,
this 27th day of August 2019