



February 23, 2015  
10 CFR 54

SBK-L-15024  
Docket No. 50-443

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

Seabrook Station

Response to Requests for Additional Information for the Review of the  
Seabrook Station, License Renewal Application- SET 23 (TAC NO. ME4028)  
Relating to the Alkali-Silica Reaction (ASR) Monitoring Program

References:

1. NextEra Energy Seabrook, LLC letter SBK-L-10077, "Seabrook Station Application for Renewed Operating License," May 25, 2010. (Accession Number ML101590099)
2. NRC Letter, Requests For Additional Information for the Review of the Seabrook Station, License Renewal Application- Set 23 (TAC NO. ME4028), November 25, 2014 (Accession Number ML14301A316)

In Reference 1, NextEra Energy Seabrook, LLC (NextEra) submitted an application for a renewed facility operating license for Seabrook Station Unit 1 in accordance with the Code of Federal Regulations, Title 10, Parts 50, 51, and 54.

Enclosure 1 contains NextEra responses to the information requested in Reference 2 for RAIs B.2.1.31A-2(a) and B.2.1.31A-7. Within these responses, changes to LRA Appendix A – Updated UFSAR Supplement, and Appendix B – Aging Management Programs associated with the Alkali-Silica Reaction Monitoring Program are provided. The changes are explained, and where appropriate to facilitate understanding, portions of the LRA are repeated with the change highlighted by strikethroughs for deleted text and bolded italics for inserted text. In some instances the entire text of a section has been replaced or added. In these cases a note is included in the introduction indicating the replacement of the entire text of the section.

As discussed with the staff in a teleconference on January 30, 2015; NextEra will require additional time to fully provide the staff with requested information for the remaining RAIs, which is dependent on ongoing ASR testing. NextEra anticipates providing a response to the remaining RAIs no later than June 30, 2015.

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This letter contains no new commitments.

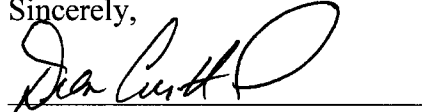
If there are any questions or additional information is needed, please contact Mr. Edward J. Carley, Engineering Supervisor - License Renewal, at (603) 773-7957.

If you have any questions regarding this correspondence, please contact Mr. Michael Ossing Licensing Manager, at (603) 773-7512.

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

Executed on February 23, 2015

Sincerely,



Dean Curtland

Site Vice President

NextEra Energy Seabrook, LLC

Enclosure 1 - Seabrook Station License Renewal Application, Response to Requests for Additional Information - Set 23, RAIs Relating to the Alkali-Silica Reaction (ASR) Monitoring Program for the Seabrook Station License Renewal Application

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**Enclosure 1 to SBK-L- 15024**

**Seabrook Station License Renewal Application  
Requests for Additional Information - Set 23**

**Response to RAIs Relating to the Alkali-Silica Reaction (ASR) Monitoring Program for the  
Seabrook Station License Renewal Application**

### **B.2.1.31A-2(a)**

#### **Background**

In its response to Request for Additional Information (RAI) B.2.1.31A-2, part 4, dated May 15, 2014, regarding criteria by which the frequency of inspection may be changed, the applicant stated that there are no plans to change the inspection frequency. However, the applicant also stated that if the “ASR monitoring results” indicate a need to amend the acceptance criteria or frequency of inspection, it will take such action under the “operating experience” program element of the Alkali-Silica Reaction (ASR) Monitoring Program.

#### **Issue**

It is not clear if the “ASR monitoring results” will be used to increase the inspection interval to greater than the 5-year interval specified in American Concrete Institute (ACI) 349.3R. Changing the inspection frequency for either tier two or tier three structures beyond 5 years may inhibit the applicant’s ability to adequately monitor for expansion due to cracking from reaction with aggregates.

#### **Request**

State whether the frequencies of inspection, established within the ASR Monitoring Program (Tier 2 and 3), will be allowed to exceed the 5-year interval generally accepted for concrete inspections per ACI 349.3R. If so, provide a justification for how inspection frequencies, exceeding a 5-year interval, will ensure adequate aging-management of ASR-affected structures.

### **NextEra Energy Seabrook Response to RAI B.2.1.31A-2(a)**

The ASR Monitoring Program augments the Structural Monitoring Program in which the inspection frequencies were established based on the recommended guidelines contained in chapter 6 of ACI 349.3R-96.

The frequencies of inspection of Tier 3 and Tier 2 areas currently specified in the ASR Monitoring Program may change based on trending, however the inspection frequencies will not exceed the 5-year frequency specified in the Structures Monitoring Program for Harsh Environment Areas.

Inspection frequencies for Mild Environments are discussed below in response to RAI B.2.1.31A-7

### **RAI B.2.1.31A-7**

#### **Background**

LRA Section B.2.1.31A, dated May 16, 2012, states under the “Monitoring and Trending” program element that “newly discovered areas exhibiting visual signs of ASR are identified during routinely performed Structural Monitoring Program inspections.” LRA Section B.2.1.31 states that periodic visual inspections are performed at a frequency determined by the characteristics of the environment in which the structure is found. LRA Section B.2.1.31 further

states that for structures in a harsh environment, inspections are performed on a 5 year basis whereas for structures in a mild environment, inspections are performed on a 10 year basis. The applicant's response to RAI B.2.1.31-5, dated February 3, 2011, describes what is defined as a harsh environment and lists the frequency of visual inspections for the structures within the scope of license renewal, based on the structure category defined in ACI-349.3R.

#### Issue

ASR has been observed throughout the site in concrete structures exposed to various environments. Considering that the ASR Monitoring Program augments the Structures Monitoring Program and ASME Section XI, Subsection IWL Program, and that "newly discovered" areas requiring monitoring for ASR progression will be identified during routine inspections in accordance with these programs, the staff is concerned that the frequency of inspection for structures in a mild environment, i.e., 10 years, may not identify "newly discovered" areas in a manner that would provide for adequate monitoring and trending.

#### Request

The staff requests that the applicant:

1. State whether the ten-year inspection frequency is adequate for identifying new locations affected by ASR in structures exposed to a mild environment, and if so, provide the basis why the 10-year frequency will provide for adequate monitoring and trending, during the period of extended operation.
2. If these structures in a mild environment will be monitored at a frequency other than that originally described in the License Renewal Application (LRA), state the new inspection frequency and provide the basis for its determination.

#### NextEra Energy Seabrook Response to RAI B.2.1.31A-7

1. Per the Structural Monitoring Program a Harsh Environment is defined as:

*"...an area subjected to outside ambient conditions, high moisture, wet or humidity, very high ambient temperatures or frequent large cycling of temperatures (including freezing/thawing), frequent exposure to caustic materials, or extremely high radiation levels."*

The Structural Monitoring Program defines and classifies a Mild Environment as an area that is not a Harsh Environment.

Based on the definition above ASR is not expected to be discovered in concrete structures exposed to a Mild Environment as a Mild Environment lacks the sufficient moisture needed to produce an Alkali-Silica Reaction. Accordingly, the 10-year inspection frequency is appropriate

for monitoring and trending other concrete degradation mechanisms for structures exposed to Mild Environments such as those described in ACI 349.3R-96 and ACI 201.1R-92.

2. To date the progression of ASR degradation has not been detected in a concrete structure located in a mild environment, therefore, the structures in a Mild Environment will continue to be monitored on a 10 year frequency as originally described in the LRA.

Note: Inspection frequencies increase when a deficiency is found in an area for all Environments (deficiencies include but are not limited to ASR).

Based on the above definition of what constitutes a Harsh Environment, LRA Section B.2.1.31 (Structures Monitoring Program), has been revised as follows:

The Seabrook Station Structures Monitoring Program includes periodic visual inspection of structures and structural components for the detection of aging effects specific for that structure. These inspections are completed by qualified individuals at a frequency determined by the characteristics of the environment in which the structure is found. A structure found in a harsh environment is defined as one that is in an area that is ~~routinely~~ subject to outside ambient conditions, very high temperature, high moisture or humidity, frequent large cycling of temperatures, frequent exposure to caustic materials, or extremely high radiation levels. For structures in these harsh environments, the inspection is conducted on a five year basis (plus or minus one year due to outage schedule and two inspections within ten years). Structures not found in areas qualifying as a harsh environment are classified as being in a mild environment, and are inspected on a ten year basis (plus or minus one year due to outage schedule and two inspections within twenty years).