



MAR 27 2015

L-2015-074

Secretary  
ATTN: Rulemakings and Adjudications Staff  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

Subject: Comments on Petition for Rulemaking; Improved Identification Techniques Against Alkali-Silica Reaction Concrete Degradation at Nuclear Power Plants (Docket No. PRM-50-109; NRC-2014-0257)

Florida Power and Light Company, the licensee for the St. Lucie Nuclear Plant, Units 1 and 2, and the Turkey Point Nuclear Plant, Units 3 and 4, and its affiliates, NextEra Energy Seabrook, LLC, the licensee for the Seabrook Station, NextEra Energy Duane Arnold, LLC, the licensee for the Duane Arnold Energy Center, and NextEra Energy Point Beach, LLC, the licensee for the Point Beach Nuclear Plant, Units 1 and 2 (hereafter referred to collectively as "NextEra"), hereby submit comments on the Proposed Rule, "Improved Identification Techniques Against Alkali-Silica Reaction Concrete Degradation at Nuclear Power Plants," published in the Federal Register on January 12, 2015 (80 FR 1476).

In addition to the attached comments, NextEra endorses the comments provided by the Nuclear Energy Institute (NEI) on the subject petition for rulemaking.

We appreciate the NRC's consideration of NextEra's comments.

Sincerely yours,

A handwritten signature in black ink, appearing to read "James M. Petro, Jr.", written over a large, stylized flourish.

James M. Petro, Jr.  
Nuclear Licensing and Regulatory Compliance Director

Attachment (1)

Attachment – NextEra Energy Comments  
Docket No. PRM-50-109 / Docket ID NRC-2014-0257

General Comments:

The subject petition seeks to require Licensees to adopt ACI Standard 349.3R, "Evaluation of Existing Nuclear Safety-Related Concrete Structures," and ASTM C 856-11 "Standard Practice for Petrographic Examination of Hardened Concrete," for Alkali-Silica Reaction (ASR) concrete degradation. Both of these codes have been used by NextEra Energy (NextEra) for investigation of the Alkali-Silica Reaction (ASR) conditions at Seabrook Station. The petitioner's basis for the proposed change seems to imply that new identification techniques are needed to address ASR. While both ACI 349.3R and ASTM C 856-11 are useful standards, neither provides any new or improved means to identify, monitor or assess ASR-impacted structures. In general, the petitioner appears to not differentiate between identification of ASR, monitoring its progression, and evaluating its structural implications.

ACI 349.3R

ACI 349.3R provides limited guidance relative to ASR identification and evaluation. Identification from ACI 349.3R walk downs generally consists of visual inspection of observable crack surfaces. There are no new or improved methods of ASR detection provided in ACI 349.3R. It does provide a tiered response criteria based on observable crack sizes but does not include specific evaluation methods for concrete meeting the tiered response criteria.

ASTM C 856-11

ASTM C 856-11 is a standard for petrographic analysis of concrete, which includes identification of distress mechanisms like ASR. ASTM C 856-11 provides established petrographic techniques and does not provide any improved method for ASR detection or monitoring. NextEra agrees that petrography provides a definitive confirmation of ASR; however other techniques including chemical analysis of the ASR gels provide similar confirmation. Furthermore, petrography alone does not provide any way to quantify structural degradation due to ASR.

Moreover, licensees are already required by 10 CFR 50, Appendix B, to identify and correct conditions adverse to quality and by 10 CFR 50.65, to monitor the performance or condition of structures, systems, and components to provide reasonable assurance that they are capable of fulfilling their intended function. For these reasons and as explained in the Nuclear Energy Institute (NEI) comments on the subject petition, NextEra does not believe that rulemaking is necessary to resolve the issues related to inspecting concrete for ASR.

Specific Comments:

There are several misconceptions included in the "Rationale for the Changes" section provided in the petition as well as factual errors related to NextEra activities at Seabrook Station. The specific comments are:

1. Page 2, first paragraph incorrectly states that NextEra did not have a code certified "responsible engineer" at Seabrook Station performing the visual inspections for the ASME Section XI, IWL inspections. In fact, each of the IWL inspections had a certified responsible engineer as required by ASME Section XI.
2. Page 2, in the third paragraph of section IV of the petition states that Dr. Paul Brown provided a scientific basis challenging the effect that confinement reduces cracking and that the removal of structural context invalidates structural testing. NextEra is not aware of a scientific basis for this statement. Additionally, there is apparent confusion in the petitioner's statement regarding the use of removed concrete cores for identification of ASR as opposed to their use in evaluation of structural performance. NextEra agrees that the material tests done on removed cores can be useful for identification and monitoring of ASR. However, directly applying ASR affected core test results to a structural evaluation without consideration of structural context is inappropriate.
3. Page 3, in the first paragraph, states that the 131 locations with "assumed" ASR at Seabrook Station were not further evaluated. This is incorrect. All of the 131 locations at Seabrook Station were included in the structural evaluation and reviewed by NRC.
4. Page 3, second paragraph states that codes and standards exist to detect and determine the key material properties needed to evaluate the degree and severity of ASR damage. It is implied that this could be accomplished by simple adoption of ACI 349.3R. These statements demonstrate confusion between identification and diagnosing of ASR and evaluating its impact on structural performance. ACI 349.3R endorses visual means to identify ASR and requires further structural evaluation if certain criteria are met, but does not provide a method of structural evaluation performance. This paragraph goes on to state that the NRC has allowed licensees to implement alternatives "yielding unacceptable results". This conclusion is not substantiated.
5. Page 3, paragraph 5, discusses a freeze thaw concrete cracking mechanism at the Davis Besse power plant that has no connection to ASR.
6. Page 3, last paragraph, states that "The below grade portions, those regions most likely to be exposed to groundwater and thus most likely vulnerable to ASR, cannot be examined." Contrary to this statement, these are precisely the areas where ASR was first detected at Seabrook. The interior surface of the exterior walls of below grade structures are each generally accessible for inspection.