POLICY ISSUE
(Notation Vote)

March 8, 2018 SECY-18-0036

FOR: The Commissioners

FROM: Victor M. McCree
Executive Director for Operations

SUBJECT: DENIAL OF PETITION FOR RULEMAKING SUBMITTED BY THE C-10 RESEARCH AND EDUCATION FOUNDATION (PRM-50-109)

PURPOSE:

To obtain Commission approval to publish the enclosed *Federal Register* notice (FRN) (Enclosure 1) to deny a petition for rulemaking (PRM), PRM-50-109, submitted by the C-10 Research and Education Foundation (C-10 or the petitioner). This paper does not address new commitments or resource implications.

BACKGROUND:

In a petition dated September 25, 2014 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML14281A124), C-10 requested that the U.S. Nuclear Regulatory Commission (NRC) amend its regulations to provide improved identification techniques for better protection against concrete degradation due to alkali-silica reaction (ASR) at U.S. nuclear power plants. Specifically, the petitioner requested that the NRC require all licensees to comply with American Concrete Institute (ACI) Committee Report ACI 349.3R, "Evaluation of Existing Nuclear Safety-Related Concrete Structures" (ACI 349.3R), and American Society for Testing and Materials (ASTM) Standard C856-11, "Standard Practice for Petrographic Examination of Hardened Concrete" (ASTM C856-11).

The NRC assigned docket number PRM-50-109 to this petition, and published a notice of receipt in the *Federal Register* on January 12, 2015 (80 FR 1476). The public comment period closed on March 30, 2015, and the public comments are summarized and addressed in the enclosed *Federal Register* notice (FRN).

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In PRM-50-109, C-10 also references its active engagement, since December 2011, concerning the ASR issue at Seabrook Station, Unit No. 1 (Seabrook Station) and the license renewal application, submitted by the licensee, NextEra Energy Seabrook, LLC (NextEra), for Seabrook Station, on June 1, 2010. The petitioner previously submitted a request for enforcement action in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR), Section 2.206, specific to the Seabrook Station. The staff rejected that petition in a letter dated July 6, 2016 (ADAMS Accession No. ML16172A018), because it addressed deficiencies within existing NRC rules, similar to those raised in PRM-50-109. While discussion of Seabrook Station (the only nuclear power plant with a documented occurrence of ASR) is included in the FRN for PRM-50-109, the focus of the FRN was on the generic request the petitioner raised. The staff is conducting its licensing and oversight responsibilities for Seabrook Station, including conducting inspections and reviewing applications for license renewal and an ASR-related license amendment, through processes separate from the review of PRM-50-109. On April 10, 2017, C-10 submitted a Petition to Intervene and Request for Hearing regarding NextEra's ASR-related license amendment request for Seabrook Station, which the staff has been addressing separately through the NRC's 10 CFR Part 2 adjudicatory process.

DISCUSSION:

The petitioner asserts that visual inspections are not adequate to detect and confirm ASR. The NRC agrees that visual inspections alone are not enough to positively diagnose ASR. However, visual inspections are effective in identifying visible manifestations of potentially damaging ASR. Based on such indications, further actions, as necessary, can be taken to limit further degradation. Therefore, the NRC's position is that visual examination provides reasonable assurance that routine monitoring of concrete structures will identify areas of potential structural distress or degradation, including degradation due to ASR.

The petitioner further asserts that codes and standards exist for detecting and evaluating ASR damage. The NRC does not agree that currently available codes and standards provide a sufficient basis for the detection and evaluation of ASR. ACI 349.3R is an ACI Committee technical report intended to provide recommended guidance for developing and implementing a procedure for the inspection and evaluation of many common concrete degradation mechanisms in nuclear structures. It contains limited information regarding ASR. The NRC agrees that ASTM C856-11 details how to conduct petrographic analysis of concrete bores and provides an acceptable method to positively confirm the diagnosis of ASR. However, ASTM C856-11 does not provide guidance on when cores should be taken, from where, how many, or how frequently. Also, ASTM C856-11 does not provide a method to evaluate ASR damage for impact on structural performance. The NRC agrees that both of these documents provide useful guidance and methods that licensees may adopt, as applicable, to meet the requirements in the existing NRC regulations.

Finally, the petitioner asserts that the NRC's regulations should require compliance with ACI 349.3R and ASTM C856-11. The NRC does not agree that its regulations should be revised to require compliance with ACI 349.3R and ASTM C856-11. The NRC has established regulations that are adequate to ensure that concrete degradation, including concrete degradation due to ASR, is detected and addressed before there is significant degradation to the structural capacity of safety-related concrete structures. Therefore, new regulations requiring compliance with ACI 349.3R and ASTM C856-11 are not needed to provide reasonable assurance of adequate protection of public health and safety due to concrete degradation, including ASR.

RECOMMENDATION:

The NRC staff recommends that the Commission deny PRM-50-109 because existing NRC regulations and oversight activities provide reasonable assurance of adequate protection of public health and safety. Specifically, the NRC's existing regulatory program is sufficient to ensure that concrete degradation due to ASR will not result in unacceptable reductions in the structural capacity of safety-related structures at nuclear power plants. The petitioner failed to present any new information in PRM-50-109 not already considered by the NRC when addressing the identification of ASR at a nuclear power plant, which would warrant the adoption of the regulations requested in the PRM.

The NRC staff requests the Commission's approval to publish the FRN (Enclosure 1) denying PRM-50-109. The enclosed letter for signature by the Secretary of the Commission (Enclosure 2) informs the petitioner of the Commission's decision to deny the petition. The NRC staff would also inform the appropriate Congressional committees of the Commission's decision.

COORDINATION:

The Office of the General Counsel has reviewed this package and has no legal objection to the denial of the petition.

Daniel H Dorman FOR

Victor M. McCree
Executive Director
for Operations

Enclosures:
1. *Federal Register* notice
2. Letter to the Petitioner

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DATED: March 8, 2018

ADAMS Accession Nos: **PKG**: ML15301A002; **LTR**: ML15301A003; **SECY**: ML15301A084; **FRN**: ML15301A192
Congressional Ltrs: ML15301A197 *concurrence via email

OFFICE	NRR/DPR/PRMB/PM	NRR/DPR/PRMB/RS	NRR/DPR/PRMB/BC	NMSS/DRMRASB/BC*	NMSS/DRM/D
NAME	JCarneal	GLappert	MKhanna	CBladey (JShepherd for)	TClark
DATE	06/20/2016	1/24/2018	1/26/2018	2/13/2018	1/30/2018
OFFICE	NRR/DE/D*	NRO/DEIA/DD*	RES/DE/D*	OGC*	NRR/D*
NAME	EBenner	CCarpenter	BThomas	MSpencer (TCambell for)	BHolian, (RLorson for)
DATE	2/13/2018	2/13/2018	2/13/2018	2/13/2018	3/5/2018
OFFICE	EDO				
NAME	VmcCree DDorman for				
DATE	3/8/2018				

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