



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

February 28, 2019

Dr. Jennifer L. Uhle  
Vice President, Generation & Suppliers  
Nuclear Energy Institute  
1201 F Street, NW, Suite 1100  
Washington, DC 20004

SUBJECT: TIMELY RESOLUTION OF ISSUES RELATED TO TORNADO-MISSILE  
PROTECTION

Dear Dr. Uhle:

The U.S. Nuclear Regulatory Commission (NRC) staff is interested in the timely and efficient resolution of longstanding issues related to tornado-missile protection with the goal of bringing closure to these issues in 2019. Much of the regulatory history regarding efforts to address this issue is described in Regulatory Issue Summary (RIS) 2015-06, "Tornado Missile Protection," dated June 10, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15020A419); Enforcement Guidance Memorandum (EGM) 15-002, Revision 1, "Enforcement Discretion for Tornado-Generated Missile Protection Noncompliance," dated February 15, 2017 (ADAMS Accession No. ML16355A286);<sup>1</sup> and DSS-ISG-2016-01, Revision 1, "Clarification of Licensee Actions in Receipt of Enforcement Discretion Per Enforcement Guidance Memorandum EGM 15-002, 'Enforcement Discretion for Tornado-generated Missile Protection Noncompliance'," dated November 2017 (ADAMS Accession No. ML17128A344).

Based on information gathered to date during post-compliance inspections at each plant, and considering the additional defense-in-depth benefits of mitigations strategies described below, the NRC has confidence that the safety significance of tornado missiles is very low. U.S. nuclear plants recently implemented mitigation strategies to prevent damage to the reactor core, and to the spent fuel, from beyond-design-basis external events. The strategies were developed in response to NRC Order EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events." Nuclear plant impacts from high wind events, such as those caused by extreme tornadoes, were among the external hazards addressed through implementation guidance used to comply with the order. The NRC also completed audits and safety evaluations of each licensee's final implementation plans that addressed the order.

Prior NRC tornado-missile guidance was not intended to expand or revise the scope of structures, systems, and components (SSCs) required to be protected at each facility.

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<sup>1</sup> EGM 15-002 will remain in effect to address nonconforming conditions associated with SSCs determined to be inoperable as a result of identified conditions. NRC guidance regarding nonconforming conditions and the potential impacts on operability was not modified as a result of the EGM. The NRC staff will continue to evaluate nonconformances and noncompliances against a licensee's plant-specific design bases, consider applicable NRC requirements and guidance, and follow applicable Commission direction.

Examples provided by the NRC of licensees analyzing specific failure modes of SSCs should not be interpreted as generic NRC positions on the need for all licensees to analyze those failure modes. Any imposition of a regulatory staff position interpreting the Commission's regulations that is new or different from a previously applicable staff position and that resulted in the modification of or addition to SSCs or design of a facility; or the procedures or organization required to design, construct or operate a facility, would meet the definition of a backfit under 10 CFR 50.109(a)(1).

The NRC is looking at efficient options to provide flexibility in addressing low-safety significance issues. Consistent with the Principle of Good Regulation regarding efficiency, where several effective alternatives are available, the option which minimizes the use of resources should be adopted. Licensees should evaluate the current plant configuration against the current Updated Final Safety Analysis Report (UFSAR), the initial safety evaluation report issued at the operating license stage, all subsequent tornado protection related NRC approvals for the facility, and the "known and established" NRC guidance at the time of the approval(s); and may pursue the following options:

- If the as-found configuration is within the existing licensing basis, no further action is required on the part of the licensee.
- If the as-found configuration is not within the existing licensing basis, the licensee is expected to bring the facility back into compliance by facility modifications and/or licensing basis changes. Depending on the specific circumstances, several approaches can be considered such as:
  - Changes evaluated under 10 CFR 50.59 <sup>2</sup>
  - Requests for a license amendment, if applicable
  - Requests for exemptions

Where ambiguity exists, the licensees should clarify the facility UFSAR to more accurately reflect existing NRC approvals related to externally generated tornado-missile protection. If you have any further questions about this matter, please contact Mr. Shaun Anderson at 301-415-2039.

Sincerely,

**/RA/**

Ho K. Nieh, Director  
Office of Nuclear Reactor Regulation

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<sup>2</sup> Tornado-missile protection issues have been addressed through modification of facilities and participation in industry-led initiatives such as the Electric Power Research Institute's TORMIS computer code, and use of Nuclear Energy Institute (NEI) 17-02, "Tornado Missile Risk Evaluator (TMRE) Industry Guidance Document," Revision 1, issued September 2017 (ADAMS Accession No. ML17268A036). The NRC is finalizing its TMRE pilot plant reviews. Licensees may use TORMIS, TMRE, or other such methods on a plant-specific basis in accordance with 10 CFR 50.59.



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February 28, 2019

Mr. Keith Jury  
Vice President, Regulatory Assurance  
Entergy Services, Inc.  
1340 Echelon Parkway  
M-ECH-61  
Jackson, MS 39213

SUBJECT: TIMELY RESOLUTION OF ISSUES RELATED TO TORNADO-MISSILE  
PROTECTION

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February 28, 2019

Mr. Mano Nazar  
President and Chief Nuclear Officer  
Florida Power & Light Company  
NextEra Energy  
700 Universe Boulevard  
Mail Stop: EX/JB  
Juno Beach, FL 33408

SUBJECT: TIMELY RESOLUTION OF ISSUES RELATED TO TORNADO-MISSILE  
PROTECTION

Dear Mr. Nazar:

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PROTECTION DATED FEBRUARY 28, 2019

Identical letters sent to:

Dr. Jennifer L. Uhle  
Vice President, Generation & Suppliers  
Nuclear Energy Institute  
1201 F Street, NW, Suite 1100  
Washington, DC 20004

Mr. Keith Jury  
Vice President, Regulatory Assurance  
Entergy Services, Inc.  
1340 Echelon Parkway  
M-ECH-61  
Jackson, MS 39213

Mr. Mano Nazar  
President and Chief Nuclear Officer  
Florida Power & Light Company  
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700 Universe Boulevard  
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