



Scott L. Batson  
Vice President  
Oconee Nuclear Station

**Duke Energy**  
ON01VP | 7800 Rochester Hwy  
Seneca, SC 29672

o: 864.873.3274  
f: 864.873.4208  
Scott.Batson@duke-energy.com

ONS-2014-164

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Duke Energy Carolina, LLC (Duke Energy)  
Oconee Nuclear Station, Units 1, 2 and 3  
Docket Numbers 50-269, 50-270, 50-287  
Renewed License Numbers DPR-38, DPR-47, and DPR-55

**Subject:** Revision to Tornado/HELB Mitigation Strategies and Regulatory Commitment 17T

References:

1. Duke Energy Letter, "*Tornado/HELB Mitigation Strategies and Regulatory Commitments*," dated November 30, 2006 ADAMS Accession No. ML070290328.
2. Duke Energy Letter, "License Amendment Request to Revise Portions of the Updated Final Safety Analysis Report Related to the Tornado Licensing Basis; License Amendment Request No. 2006-009," dated June 26, 2008, ADAMS Accession No. ML081840371.
3. Duke Energy Letter, "*Tornado and High Energy Line Break (HELB) Mitigation License Amendment Requests (LARs)- Responses to Request for Additional Information*," dated December 16, 2011, ADAMS Accession No. ML120030226.
4. Duke Energy Letter, "*Revision to Tornado/HELB Mitigation Strategies and Regulatory Commitments 8T, 10T, 17T, and 25H*," dated December 19, 2013.

Duke Energy's initial commitments related to tornado mitigation strategies are documented in a November 30, 2006 submittal (Ref. 1). These commitments were most recently updated in a Duke Energy submittal dated December 19, 2013 (Ref. 4). This letter is Duke Energy's notification of a needed revision to Tornado Commitment 17T of the Reference 4 letter.

This letter revises Tornado Commitment 17T, which is a modification to improve the protection for a set of double doors on the SSF. The commitment was to complete the modification by January 31, 2015. A design was conceived, and specific design criteria was developed; however, upon moving toward implementation the design was determined to be neither feasible nor constructible. Insufficient time remains to develop and implement a new design prior to the committed due date.

A commitment change is necessary to allow time for the development of a new design strategy to provide the necessary door protection. The 17T commitment has been revised with a due date of September 30, 2015 to provide an implementation completion date for the new modification. The revision is indicated on Enclosure 1 of this letter, which is a complete list of tornado commitments.

In accordance with Tornado Commitment 10T, Duke Energy has verbally notified Louise Lund, NRC Deputy Director, Division of Reactor Licensing of this commitment change via telephone on December 19, 2014.

Duke Energy remains resolved to complete the tornado mitigation commitments and values the risk benefit it will provide for the station.

If you have any questions in regard to this letter, please contact Stephen C. Newman, Oconee Nuclear Station, Regulatory Affairs Group at (864) 873-4388.

Sincerely,

A handwritten signature in black ink, appearing to read "Scott Y. Batson".

Scott Batson  
Vice President,  
Oconee Nuclear Station

Enclosure

1. Revised Tornado Commitments

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Revision to Tornado Commitment 17T  
December 19, 2014

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cc (w/enclosure):

Mr. Victor McCree, Regional Administrator  
U.S. Nuclear Regulatory Commission – Region II  
Marquis One Tower  
245 Peachtree Center Ave., NE Suite 1200  
Atlanta, Georgia 30303-1257

Mr. James R. Hall, Project Manager (ONS)  
(by electronic mail only)  
U.S. Nuclear Regulatory Commission  
11555 Rockville Pike  
Mail Stop O-8B1  
Rockville, MD 20852

Mr. Eddy Crowe  
NRC Senior Resident Inspector  
Oconee Nuclear Station

Ms. Susan Jenkins, Manager  
Radioactive & Infectious Waste Management  
Division of Waste Management  
South Carolina Department of Health and Environmental Control  
2600 Bull St.  
Columbia, SC 29201

Enclosure 1

Revised Tornado Commitments

No.	Tornado Commitments	Due Date	Complete (Y/N)
1T	U3 Control Room North Wall Modification.	-	Y
2T	SSF Diesel Fuel Vent Modification.	-	Y
3T	SSF and CT-5 Trenches Intersection Modification SSF Trench at north end of SSF (TORMIS).	-	Y
4T	Borated Water Storage Tank Modifications.	-	Y
5T	West Penetration Room (WPR) and Cask Decontamination Tank Room (CDTR) Wall Modifications.	-	Y
6T	Fiber Reinforced Polymer (FRP) LAR for strengthening selected masonry walls for tornado wind and ΔP.	-	Y
7T	Tornado Mitigation Strategy LAR.	-	Y
8T	PSW/HPI modifications.	2-4-2016	N
9T	Missile inventory program developed.		Y
10T	Verbally notify in advance the Deputy Director, Division of Reactor Licensing of the NRC, followed by a written communication, of significant changes in the scope and/or completion dates of the commitments. The notification will include the reason for the changes and the modified commitments and/or schedule.	2022	N
11T 12T 13T	Installation of MSIVs.	U1: 2020 U2: 2021 U3: 2022	N
14T	Fiber Reinforced Polymer (FRP) LAR for strengthening selected "brick" masonry walls for tornado wind and ΔP.	-	Y
15T	Analyze the double column set which support each unit's Main Steam lines outside of the containment building, and provide modifications, as necessary, to meet tornado criteria	-	Y
16T	Physically protect the Atmospheric Dump Valve's (ADV's) function per RG 1.76, Rev. 1.	U1: 2020 U2: 2021 U3: 2022	N
17T	Improve protection of the Standby Shutdown Facility (SSF) double doors (large 8'x12' doors located on the south side of the SSF structure) per UFSAR SSF tornado criteria. <b>By 9-30-2015, this commitment will be updated to provide the completion date for implementing the modification.</b>	9-30-2015	N
18T	Revise and clarify the tornado LB description as documented in UFSAR Section 3.2.2; add the TORMIS methodology results to UFSAR Section 3.5.1.3, and correct inaccurate tornado design information for the Auxiliary Building Cable and Electrical Equipment Rooms as described in UFSAR Table 3-23.	After issuance of the SER.	N
19T	The SSF BASES for TS 3.10.1 will be clarified to address degradation of passive civil features as not applying to operability under Technical Specifications Limiting Condition for Operation (TS LCO) 3.10.1, "Standby Shutdown Facility," but rather as UFSAR commitments outside of the ONS TS.	After issuance of the SER.	N

No.	Tornado Commitments	Due Date	Complete (Y/N)
20T <sup>1</sup>	Duke Energy will perform qualification testing and reporting in accordance with ICC AC125 [Reference 5 of Enclosure 2] for the selected FRP System.	-	Y
21T	Duke Energy will perform and document a technical evaluation of the FRP system (fibers and polymeric resin) in accordance with Duke Energy's Supply Chain Directive SCD230 [Reference 7 of Enclosure 2] to demonstrate that: <ol style="list-style-type: none"> <li>1. The item qualifies as a commercial grade item.</li> <li>2. The supplier is capable of supplying a quality product.</li> <li>3. The quality of the item can be reasonably assured.</li> </ol>	-	Y
22T	Duke Energy will utilize technical procedures to control testing of concrete substrate and installation and inspection of the FRP system in accordance with ICC AC125 [Reference 5 of Enclosure 2], ACI 440.2R-02 [Reference 6 of Enclosure 2], and ICC AC178 [Reference 8 of Enclosure 2].	-	Y
23T	Duke Energy will perform long-term inspection of the FRP system as described in UFSAR Section 18.3.13 and EDM-410, and in accordance with ICC AC125 [Reference 5 of Enclosure 2], ACI 440.2R-02 [Reference 6 of Enclosure 2], and ICC AC178 [Reference 8 of Enclosure 2], on a nominal 5 year interval. This inspection frequency may be reduced to a nominal 10 year interval with appropriate justification based on the structure, environment, and previous long-term inspection results. Inspections of the installed FRP system will include: <ul style="list-style-type: none"> <li>• visual inspections of test walls and selected portions of WPR walls for changes in color, debonding, peeling, blistering, cracking, crazing, deflections and other anomalies; and,</li> <li>• tension adhesion testing of cored samples taken from test walls using methods specified in ASTM D4541 [Reference 9 of Enclosure 2] or ACI 530R-02 [Reference 16 of Enclosure 2].</li> </ul>	-	Y
24T <sup>2</sup>	Duke Energy will perform qualification testing and reporting in accordance with ICC AC125 [Approved 10/2006, Effective 1/1/2007] for the selected FRP System.	-	Y
25T	Duke Energy will perform and document a technical evaluation of the FRP system (fibers and polymeric resin) in accordance with Duke Energy's Supply Chain Directive SCD230 [Reference 7 of Enclosure 2] to demonstrate that: <ul style="list-style-type: none"> <li>• The item qualifies as a commercial grade item.</li> <li>• The supplier is capable of supplying a quality product.</li> <li>• The quality of the item can be reasonably assured.</li> </ul>	-	Y
26T	Duke Energy will utilize technical procedures to control testing of concrete substrate and installation and inspection of the FRP system in accordance with ICC AC125 [Approved 10/2006, Effective 1/1/2007], ACI 440.2R-02 [Effective 7/1/2002], and ICC AC178 [Approved 6/2003, Effective 7/1/2003, editorially revised 6/2008].	-	Y

<sup>1</sup> Tornado commitments 20-23 originate from the FRP LAR dated 6-1-2006 (NRC SER dated 2-21-2008).

<sup>2</sup> Tornado commitments 20-26 are addressed in the NRC's FRP SER for brick masonry dated 6-27-2011.

No.	Tornado Commitments	Due Date	Complete (Y/N)
27T	<p>Duke Energy will implement a long-term inspection program of the FRP system that will be described in UFSAR Section 18.3.13 and EDM-410, meet the requirements of ICC AC125 [Approved 10/2006, Effective 1/1/2007], ACI 440.2R-02 [Effective 7/1/2002], and ICC AC178 [Approved 6/2003, Effective 7/1/2003, editorially revised 6/2008], on the following schedule: at each unit's outage cycle for the first six years from 2012 through 2017, then, if justified based on no observed FRP degradation, transition to every-other outage cycle for the next four years from 2018 through 2021, then, if justified based on continued no observed FRP degradation, transition to every third outage cycle thereafter from 2022 until end of license in July 2034. Inspections of the installed FRP system will include:</p> <ul style="list-style-type: none"> <li>• visual inspections of test walls and portions (both random and controlled locations) of WPR in-service walls for changes in color, debonding, peeling, blistering, cracking, crazing, deflections and other anomalies;</li> <li>• tension adhesion testing of cored samples taken from designated test walls using methods specified in ASTM D7234; and,</li> <li>• visual inspections of mortar joints located along the bottom edge of FRP-strengthened masonry walls.</li> </ul> <p>For each inspection interval, the portions of FRP-strengthened masonry walls to be inspected will be chosen in accordance with a sampling plan developed from guidance provided by a) Draft Regulatory Guide DG-1070, "Sampling Plans Used for Dedicating Simple Metallic Commercial Grade Items for use in Nuclear Power Plants", and b) EPRI NP-7218 document "Guidelines for the Utilization of Sampling Plans for Commercial Grade Item Acceptance" (NCIG-19), as implemented at ONS by Supply Chain Directive SCD-290 [(new) Reference 21 of Enclosure 2].</p> <p>Note: This response replaces the five (5) year inspection commitment made in FRP LAR (No. 2009-05) dated June 29, 2009, and will apply to the FRP application for both block and brick.</p>	-	Y
28T	<p>Duke Energy will install mechanical shear restraints along the brick masonry wall perimeter (top and sides only) and block masonry wall perimeter (top only) to remediate potentially limiting conditions of construction.</p>	-	Y
29T	<p>Duke Energy will incorporate the FRP testing and inspection program into Oconee Nuclear Station's Aging Management Program.</p>	-	Y
30T	<p>As discussed with the Staff, Fyfe Company, LLC, the manufacturer of the FRP products, will provide Duke Energy with a Certificate of Compliance certifying that both the FRP product and its installation meet all applicable requirements.</p>	-	Y