January 24, 2006

Mr. Bruce H. Hamilton, Vice President
Oconee Nuclear Station
Duke Energy Corporation
7800 Rochester Highway
Seneca, South Carolina 29672

SUBJECT: OCONEE NUCLEAR STATION, UNITS 1, 2, AND 3 - DESIGN-BASIS TORNADO (MC4608, MC4609, AND MC4610)

Dear Mr. Hamilton:

By letter dated December 21, 2005, you proposed a new design-basis tornado for certain systems, structures, and components (SSC) at Oconee Nuclear Station, Units 1, 2, and 3. This proposal would not affect the 300 miles per hour (mph) wind velocity, 3 pounds per square inch (psi) differential pressure, and the tornado-generated missile requirements that are currently defined in the Oconee Updated Final Safety Analysis Report for Class I structures. For the non-Class I structures, you proposed a change to the criterion of 1E-7 per year for tornado strike probability that is contained in the Standard Review Plan and serves as a basis for Regulatory Guide (RG) 1.76, Design Basis Tornado for Nuclear Power Plants." You proposed to change this criterion to 1E-6 per year for the Oconee design-basis tornado using the methodology of RG 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis." Your letter also proposed the use of TORMIS methodology to evaluate tornado-generated missiles.

During a conference call on January 17, 2006, we informed you that RG 1.174 is appropriate for justifying changes to the licensing basis, not changes to the design basis; therefore, your use of RG 1.174 to justify a change in the design basis is not acceptable. However, we stated that the use of TORMIS may be found acceptable for evaluating tornado-generated missiles for certain SSC in isolated cases. In addition, we informed you that a draft RG, "Draft Regulatory Guide DG-1143, Design-Basis Tornado and Tornado Missiles for Nuclear Power Plants," is being prepared and will be available for public comment in the near future. This draft RG provides guidance for selecting the design-basis tornado and design-basis tornado-generated missiles that a nuclear power plant should be designed to withstand. We stated that this draft RG uses the same methodology described in NUREG/CR-4461, Rev. 1, "Tornado Climatology of the Contiguous United States." This methodology could be used to justify a particular design-basis tornado wind speed based on the actual location of your plant.

The Oconee Nuclear Station is located in Region I in DG-1143 where the default design-basis tornado characteristics include a maximum wind speed of 300 mph, a pressure drop of 2.0 psi, and a rate of pressure drop of 1.2 psi per second (sec). The design-basis tornado-generated missile spectrum for Region I includes a 15-foot long, 6-inch diameter schedule 40 pipe with a horizontal velocity of 155 ft/sec, a 4000-pound automobile with a horizontal velocity of 170 ft/sec, and a 1-inch diameter solid steel sphere with a horizontal velocity of 134 ft/sec. These missiles should be capable of striking in all directions with vertical velocities equal to 67 percent of their horizontal velocities. Barrier design should be evaluated assuming impact normal to the surface for the schedule 40 pipe and automobile missile.

DG-1143 also presents design-basis tornado and tornado-generated missile criteria for two other regions within the contiguous United States. The design-basis tornado wind speed for Region II is 260 mph, and the corresponding design-basis tornado-generated missile spectrum includes a 15-foot long, 6-inch diameter schedule 40 pipe with a horizontal velocity of 123 ft/sec, a 4000-pound automobile with a horizontal velocity of 149 ft/sec, and a 1-inch diameter solid steel sphere with a horizontal velocity of 68 ft/sec. The design-basis tornado wind speed for Region III is 200 mph, and the corresponding design-basis tornado-generated missile spectrum includes a 15-foot long, 6-inch diameter schedule 40 pipe with a horizontal velocity of 27 ft/sec, a 4000-pound automobile with a horizontal velocity of 113 ft/sec, and a 1-inch diameter solid steel sphere with a horizontal velocity of 23 ft/sec.

The design-basis tornado wind speeds presented in DG-1143 are such that the best estimate of the exceedance frequency is 1E-7 per year. As with any regulatory guide, if a design-basis tornado proposed for a given site is characterized by less-conservative parameter values, a comprehensive analysis should be provided to justify the selection of the less-conservative design-basis tornado.

We trust that this letter and the January 17, 2006, conference call will be useful in the preparation of your letter, due January 31, 2006, that will provide commitments on tornado-related plant modifications. If you have any further questions on this matter, please contact me at 301-415-1419.

Sincerely,

/RA/

Leonard N. Olshan, Project Manager
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-269, 50-270, and 50-287

cc w/encl: See next page

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