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Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Duke Energy Carolinas, LLC
Oconee Nuclear Station, Units 1, 2, and 3
Docket Numbers 50-269, 50-270, and 50-287,
Renewed Operating Licenses DPR-38, DPR-47, and DPR-55
Licensing Basis for the Protected Service Water System - Responses to Request for Additional Information - Supplement 2

References:

1. Letter from John Boska, Senior Project Manager, Division of Operating Reactor Licensing, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, to T. Preston Gillespie, Vice President, Oconee Nuclear Station, Duke Energy Carolinas, LLC, "Request for Additional Information (RAI) Regarding the License Amendment Requests (LARs) for the Licensing Basis for the Protected Service Water System," June 11, 2012.
2. Letter from T. Preston Gillespie, Vice President, Oconee Nuclear Station, Duke Energy Carolinas, LLC, to the U.S. Nuclear Regulatory Commission, "Licensing Basis for the Protected Service Water System - Responses to Request for Additional Information," dated July 11, 2012.
3. Letter from T. Preston Gillespie, Vice President, Oconee Nuclear Station, Duke Energy Carolinas, LLC, to the U.S. Nuclear Regulatory Commission, "Licensing Basis for the Protected Service Water System - Responses to Request for Additional Information - Supplement 1," dated July 20, 2012.

By letter dated June 11, 2012, Duke Energy Carolinas, LLC (Duke Energy) formally received a Nuclear Regulatory Commission (NRC) Request for Additional Information (RAI) (Reference 1) associated with the design and licensing bases for the proposed Protected Service Water (PSW) system. Duke Energy responded to the RAI items by letters dated July 11 and 20, 2012, (References 2 and 3). Since that time, Duke Energy has received two (2) email questions regarding Duke Energy's prior responses to RAI items 140(a) and 159. This submittal contains supplemental information to be included with the previous 140(a) and 159 responses.

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

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NRR

I declare under penalty of perjury that the foregoing is true and correct. Executed on August 31, 2012.

Sincerely,

T P Gillespie

T. Preston Gillespie, Jr.
Vice President
Oconee Nuclear Station

Enclosure - Responses to RAI Items

cc: (w/enclosure)

Mr. John P. Boska, Project Manager
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Mr. Victor M. McCree, Administrator, Region II
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Enclosure

Duke Energy Responses to RAI Items

NRC Additional Discussion Regarding RAI #140(a):

In your 7/20/12 letter, the reply to RAI 140a, it states that the maximum water level resulting from the bounding CCW expansion joint failure is 795.0 feet, which would be contained within the turbine building. In UFSAR section 9.6.3.1, it states that due to a break in CCW piping located in the turbine building, the maximum expected water level within the site boundary is 796.5 ft.

The NRC staff believes there is a discrepancy between these 2 statements, as one claims 795.0 and the other 796.5. Also, the NRC staff does not understand how the water from the CCW failure in the turbine building is contained within the turbine building, given that there is a large drain hole in the lower end of the turbine building.

Duke Energy Supplemental Response:

Although there are two (2) different Turbine Building (TB) flood elevation values given in separate sections of the UFSAR associated with a Condenser Circulating Water (CCW) system piping break, each was utilized for a different purpose. Below, Item 1 describes a maximum flood height from a seismically-induced TB flood analysis that deterministically concludes that the maximum 796.5' flood elevation will not exceed the 797.0' grade level entrance of the Standby Shutdown Facility (SSF). Item #2 describes a flood elevation height as a result of "defense in depth" modifications to the Turbine Building/Auxiliary Building (TB/AB) wall. Details of each are provided below.

1. The maximum flood level elevation of 796.5 feet for a seismically-induced TB flood originates from the initial licensing of the SSF (Ref.: NRC SSF Safety Evaluation Report dated April 28, 1983). This value is described in Updated Final Safety Analysis Report (UFSAR) Section 9.6.3.1, "Standby Shutdown Facility - System Descriptions - Structure:"

   "...The grade level entrance of the SSF is 797.0 feet above mean sea level (msl). In the event of flooding due to a break in the non-seismic condenser circulating water (CCW) system piping located in the Turbine Building, the maximum expected water level within the site boundary is 796.5 ft. Since the maximum expected water level is below the elevation of the grade level entrance to the SSF, the structure will not be flooded by such an incident."

   As described above, the maximum level of the flood water (796.5 feet) remains below the entrance level of the SSF (797.0 feet) thus ensuring that SSF operations would not be adversely affected due to the TB flooding. For a seismically-induced TB flood, the flood analysis does not take credit for the TB drain since the drain path is not seismically designed.

2. The 795.0 feet elevation is the level of flood protection provided by the TB/AB wall. Replacement of access doors in the wall with submarine type doors and other installed modifications prevent potential TB flood waters from entering the Auxiliary Building (AB). As described in UFSAR Section 3.4.1.1.1, "Current Flood Protection Measures for the Turbine and Auxiliary Buildings:"

   "...To prevent transmission of flood water from the Turbine Building to the Auxiliary Building, the Turbine/Auxiliary Building wall along column line "N" is capable of withstanding a flood to a depth of 20 ft. above elevation 775 + 0. Six doors originally located on this wall have been made flood barriers. Three of the doors are permanently sealed while the remaining three have been replaced with

"submarine type" flood doors. All other penetrations through the wall to elevation 795 + 0 have been sealed."

As stated above, flood protection measures have been installed to the 795.0 foot elevation in order to prevent water from entering the AB. Operator action is credited to isolate a TB flood before flood water reaches elevation 795.0 feet and the TB drain is credited.

Additional Discussion:

Turbine Building High Energy Line Breaks (HELB) can result in pipe breaches to the CCW piping. These breaches can create flooding inside the TB and the source of flooding would need to be isolated. The previously described TB/AB wall below elevation 795.0 and the aforementioned TB drain are credited for protection of the AB from HELBs postulated to occur in the TB that could create a flood in the TB. With equipment in the AB protected from the flood waters, the Protected Service Water (PSW) System can be used for achieving safe shutdown.

NRC Additional Discussion Regarding RAI #159:

With regard to responses to RAI-159 (PSW portable pump), verify the pump has an emergency power source, or if so, whether it is supplied solely for operating convenience. According to ASME OM Code, a pump is excluded from IST program if the pump has no emergency power source, or if it is supplied solely for operating convenience.

Duke Energy Supplemental Response:

The PSW portable pump will not be powered from an emergency source (Ref. UFSAR Table 8-1 "Loads to be supplied from the Emergency Power Source"); consequently, per ASME OM Code requirements, it can be excluded from the IST program.