June 18, 2009

LICENSEE: DUKE ENERGY CAROLINAS, LLC

FACILITY: OCONEE NUCLEAR STATION, UNITS 1, 2, AND 3 (Oconee)

SUBJECT: SUMMARY OF CLOSED NOVEMBER 5, 2008, MEETING TO DISCUSS THE U.S. NUCLEAR REGULATORY COMMISSION'S, AUGUST 15, 2008, 50.54(f) LETTER ON EXTERNAL FLOODING AT OCONEE (TAC NOS. MD8224, MD8225, AND MD8226)

On November 5, 2008, a closed management meeting was held between the U.S. Nuclear Regulatory Commission (NRC) staff and representatives of Duke Energy Carolinas, LLC (Duke, the licensee) at NRC Headquarters. The purpose of the meeting was to discuss external flooding issues, including failure of the Jocassee Dam, at Oconee, and discuss the licensee's September 26, 2008, response (Agencywide Documents Access and Management System (ADAMS) Accession No. ML082750106), to the NRC's August 15, 2008, Title 10 of the *Code of Federal Regulations*, Section 50.54 (f) letter (ADAMS Accession No. ML081640244) on external flooding at Oconee. The meeting was closed to the public because the topic of discussion was security-related information.

The NRC staff presented information on external flooding issues at Oconee. A copy of the NRC staff slides is available under (ADAMS Accession No. ML083390650). The NRC staff discussed three specific issues at the meeting: (1) concerns with the Standby Shutdown Facility (SSF) licensing basis, (2) measures for supporting a basis for safe operation in the near term and (3) a long-term solution of flood protection at Oconee.

Duke stated that its goal for the study described in its letter of September 26, 2008, is to compare the results obtained from the DAMBRK code in the 1992 study to those obtained via the HEC-RAS code that Duke is developing. Duke stated that they could not meet the NRC's request to respond in 45 days from the date of NRC's August letter, but should have the model completed by December 2008. Duke stated that they were using contractors with hydrological expertise to develop the model, and suggested that NRC may wish to consult with hydrological experts from the Federal Energy Regulatory Commission (FERC) to enhance the NRC staff's technical expertise, if necessary, since neither Duke nor NRC typically deal with inundation studies associated with dam failures.

The NRC staff indicated that the technical arguments made in the letter dated September 26, 2008, were problematic, because there is not enough data on dam failure modes to support a probabilistic study. Specifically, the limited data was not sufficient to support a parsing of the data and to construct fault trees. In addition, probabilities do not support elimination of certain dam failure modes. The NRC also stated that it did not think it realistic to achieve a probability of below 1E-7 for dam failures, which is what would be needed to establish such an event as not credible. The NRC staff also expressed concerns about soil compaction and liquefaction potential.

The NRC staff agreed that there was no need to take immediate regulatory action because: (1) the initiating event frequency of a failure of the Jocassee Dam is low, and (2) the accident sequence leading to core damage is on the order of a few days.

The technical basis for addressing adequate flood protection at Oconee needs to be reestablished. The NRC staff stated that Duke needs to provide the NRC with a technically justifiable inundation study, and any plans to enhance flood protection at the site, within one year. The NRC would be open to discuss allowing an additional year to complete plant modifications, if the necessary enhancements turn out to be extensive.

The NRC staff also stated that an external event is considered to be "credible" if the probability of occurrence is greater than 1E-7, and that dam failures would exceed this threshold. Therefore, Duke needs to consider the impact that a failure of the Jocassee dam would have on the Oconee site.

The NRC staff discussed concerns about the adequacy of the current licensing basis for Oconee with respect to flood protection. The NRC staff is concerned that the SSF is currently protected to a flood height of 5 feet, while the 1992 Inundation Study (the only one on record) indicates a flood height that is much higher. The NRC staff also indicated that the assessment on some of the key parameters (e.g. breach size and time to failure) used in the 1992 study appears to be non-conservative. The applicability of dam failure modes including random, overtopping and seepage/foundation were discussed.

The licensee indicated that it was evaluating an engineered solution to the external flood issues at Oconee. The licensee requested a meeting with NRC staff to allow Duke to better understand the NRC's concerns regarding Duke's September 26, 2008 response to the 50.54(f) letter. The NRC staff agreed to meet with the licensee in December 2008.

Please direct any inquiries to me at 301-415-1119, or Jon.Thompson@nrc.gov.

Sincerely,

/RA/

Jon Thompson, 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

Enclosure:
List of Attendees

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Please direct any inquiries to me at 301-415-1119, or Jon.Thompson@nrc.gov.

Sincerely,

/RA/

Jon Thompson, 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

Enclosure:
List of Attendees

ADAMS Accession No. PKG ML091520327 Meeting Summary ML091060761 Handouts ML083390650

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ATTENDEES AT THE CLOSED NOVEMBER 5, 2008, MEETING WITH DUKE ENERGY CAROLINAS, LLC (DUKE), TO DISCUSS EXTERNAL FLOODING ISSUES AT THE OCONEE NUCLEAR STATION, UNITS 1, 2, AND 3

NRC
J. Grobe
T. McGinty
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D. Skeen
K. See
S. Burnell
R. Schaaf
M. Franovich
G. Bagchi
L. Olshan
K. Manoly
R. Pichumani
J. Vail
J. Thompson
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J. Stang
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B. Davis*
A. Hutto*

DUKE
D. Baxter
R. Freudenberger
L. Kanipe
T. Brown
G. Davenport
E. Luttrell
R. McCoy
S. Nader
D. Cummings
S. Hammond

*Participated by phone

Enclosure