

November 10, 2009

LICENSEE: DUKE ENERGY CAROLINAS, LLC (DUKE)  
FACILITY: OCONEE NUCLEAR STATION 1, 2, AND 3  
SUBJECT: SUMMARY OF CLOSED MEETING MAY 11, 2009, WITH DUKE ENERGY CAROLINAS, LLC, TO DISCUSS PRELIMINARY RESULTS OF THE RECENT INUNDATION AND SENSITIVITY STUDIES CONCERNING FAILURE OF THE JOCASSEE DAM AND RESULTANT FLOODING AT THE OCONEE NUCLEAR STATION, UNITS 1, 2, AND 3 (TAC NOS. MD8224, MD8225 AND MD8226)

On May 11, 2009, a closed meeting was held between the U.S. Nuclear Regulatory Commission (NRC) and representatives of Duke Energy Carolinas, LLC (the licensee), at NRC Headquarters, One White Flint North, 11555 Rockville Pike, Rockville, Maryland. The purpose of the meeting was to discuss the preliminary results of the recent inundation and sensitivity studies concerning failure of the Jocassee Dam and resultant flooding at Oconee Nuclear Station, Units 1, 2, and 3 (Oconee) and to discuss the associated licensing basis to reflect external flooding at Oconee.

The licensee presented information on previous and current inundation analyses and made a comparison from the recent March 2009 HEC-RAS study with the previous 1983 and 1992 studies. During the discussion of the new model, the licensee emphasized that the HEC-RAS model seeks a more accurate prediction and that it provides more cross sections when compared with the previous models of 1983 and 1992. The licensee stated that the major difference was that the new study allowed a detailed focus on the Oconee site versus the whole system view of the 1992 study. The meeting summary provides a general description of the presentation, and a more detailed description of the discussion is provided in the slides in the Agencywide Documents Access and Management System, Accession No. ML091380424.

The NRC staff queried the licensee about the parameters it had selected for the study. The NRC staff identified the elevation of the canal dikes, breach location on the dikes, and the size and failure rate of the postulated breach as important parameters regarding flooding potential from the intake canal. Size, failure rate and breach location along the west saddle dike, as well as the size and failure rate of the breach in the main embankment of Keowee Dam, are to be considered in regard to Kewaunee Dam. NRC staff reiterated that it needs to make a decision in the near term regarding adequate protection at the Oconee site concerning external flooding events. In addition, NRC staff stated that the regulatory basis for dam safety is deterministic rather than probabilistic, and that dam failures at the Oconee site are credible events (any event

~~LIMITED INTERNAL DISTRIBUTION  
PERMITTED~~

Duke

- 2 -

with a frequency greater than 10-E6 is considered credible). The licensee and the NRC agreed that no analysis could show that dam failure at Jocassee was less than a 10-E7 probability.

In summary the NRC staff raised the following concerns regarding the study:

- (1) The licensee should identify and justify the key parameters used in the model
- (2) The licensee should provide a credible failure mode for the analysis
- (3) The Oconee site had yet to be modeled for potential flooding and would be a key determinant in the results of the study
- (4) The NRC staff expects an approach for resolution of the issue to be submitted in the fall of 2009. Duke will complete any necessary modifications to the Oconee site by the fall of 2010.

The licensee stated its view that the Yankee Rowe Harriman Dam issue represented a precedent that could assist in resolving the issue. The licensee also stated that it felt this issue is no longer a site-specific issue but rather a generic issue. The NRC responded that given that the Oconee site has no internal flooding protection and no diesels, it is being treated appropriately in light of the Oconee design. The licensee stated that a deterministic approach is needed, but that the current NRC staff's approach is out-of-process. The licensee wanted to understand how this issue aligned with the licensing basis of the plant. The licensee stated it was going to employ 2-D modeling, but didn't have a date by which it would do so. The licensee expressed that more work is needed to be done and that it was not ready to state its final set of boundaries for the 2-D model at this time.

A new agenda item was added which entailed a discussion of the NRC staff's initial questions concerning the March 2009 inundation study. Detailed questions were posed on a number of features of the study. The licensee indicated that it would need 60 days to respond to the April 30, 2009, letter issued by the NRC to answer questions addressed in the letter, as opposed to the 30 days requested by the NRC.

At the conclusion of the meeting, the NRC staff and the licensee discussed outcomes of the meeting and agreed that:

- (1) The licensee will send a letter authorizing meeting participants to keep the maps provided (which include proprietary data).
- (2) The licensee will request an extension from 30 days to 60 days to respond to the staff's April 30, 2009, letter.
- (3) The licensee will provide at the next monthly meeting a schedule for modeling the Oconee yard and will provide a plan for how it will address critical parameters in the study.

~~LIMITED INTERNAL DISTRIBUTION  
PERMITTED~~

Duke

- 3 -

A list of meeting attendees is enclosed. Please direct any inquiries to John Stang, Project Manager at 301-415-1345, or John.Stang@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. 269, 270, and 287

Enclosure:  
List of Attendees

~~LIMITED INTERNAL DISTRIBUTION  
PERMITTED~~

Duke

- 3 -

A list of meeting attendees is enclosed. Please direct any inquiries to John Stang, Project Manager at 301-415-1345, or John.Stang@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. 269, 270, and 287

Enclosure:  
List of Attendees

~~LIMITED INTERNAL DISTRIBUTION  
PERMITTED~~

**Distribution**

Nonpublic	RidsAcrsAcnw_MailCTR Resource	RidsNrrDorLpl2-1 Resource
LPL2-1 R/F	RidsNrrPMOconee Resource	RidsNrrLAMOBrien Resource
RidsOgcRp Resource	RidsRgn2MailCenter Resource	CTucci, NRR
DDiaz-Toro, EDO RII	RidsNrrAdes Resource	ABoland, NRR
MGalloway, NRR	DSkeen, NRR	RidsNrrDorl Resource
MCunningham, NRR	MKhanna, NRR	RCarroll, NRR
GBagchi, NRR	CMarco, NRR	KSexton, NRR
KManoly, NRR	RPichumani, NRR	JVail, NRR
JThompson, NRR	JCircle, NRR	NColeman, NRR
JArce, NRR	CCook, NRR	RWescott, NRR
JGrobe, NRR	AHowe, NRR	JBartley, RII

ADAMS Accession No. ML092940769

OFFICE	DORL/LPL2-1/PM	DORL/LPL2-1/LA	DORL/LPL2-1/BC	DORL/LPL2-1/PM
NAME	JThompson	MO'Brien	GKulesa	JThompson
DATE	11/5/09	11/4/09	11/6/09	11/10/09

OFFICIAL RECORD COPY

LIST OF ATTENDEES

MAY 11, 2009, NUCLEAR REGULATORY COMMISSION (NRC) MEETING

WITH THE FEDERAL ENERGY REGULATORY COMMISSION (FERC) AND

DUKE ENERGY CAROLINAS, LLC (DUKE)

TO DISCUSS EXTERNAL FLOODING ISSUES

AT THE OCONEE NUCLEAR STATION, UNITS 1, 2, AND 3

NRC

J. Grobe  
A. Boland  
M. Galloway  
D. Skeen  
A. Howe  
M. Cunningham  
M. Khanna  
J. Bartley  
R. Carroll  
G. Bagchi  
C. Marco  
K. Sexton  
K. Manoly  
R. Pichumani  
J. Vail  
J. Thompson  
J. Circle  
N. Coleman  
J. Arce  
C. Cook  
R. Wescott

DUKE

R. Freudenberger  
B. Meixell  
J. Fisicano  
T. Brown  
M. Glover  
E. Luttrell  
R. McCoy  
D. Cummings  
B. Keaton  
C. Ey

FERC

D. Capka  
K. Fearon  
C. Wagner\*  
W. King\*  
R. Pool\*  
W. Duke\*

\*Participated by phone

~~LIMITED INTERNAL DISTRIBUTION  
PERMITTED~~

Enclosure