

August 12, 2004

MEMORANDUM TO: Mary Jane Ross-Lee, Acting Chief, Section 1
Project Directorate II
Division of Licensing Project Management

FROM: Leonard N. Olshan, Project Manager, Section 1 /RA/
Project Directorate II
Division of Licensing Project Management, NRR

SUBJECT: FORTHCOMING MEETING WITH DUKE ENERGY CORPORATION

DATE & TIME: Wednesday, August 25, 2004
8:00 a.m. - 3:45 p.m.

LOCATION: Oconee Nuclear Station - World of Energy
Downstairs Meeting Room
7800 Rochester Highway
Seneca, South Carolina

PURPOSE: To present the NRC staff and licensee perspective on the licensee's June 7, 2002, risk-informed amendment request (ADAMS ML021710770) that would revise the Oconee licensing basis for tornado mitigation. Supplemental information was provided by the licensee on January 29, 2003 (ADAMS ML030380340) and June 18, 2003 (ADAMS ML031820616).

CATEGORY 1: * This is a Category 1 Meeting. The public is invited to observe this meeting and will have one or more opportunities to communicate with the NRC after the business portion, but before the meeting is adjourned.

MEETING CONTACTS:	L. N. Olshan, NRR 301-415-1419 lno@nrc.gov	Robert E. Martin, NRR 301-415-1439 rem@nrc.gov
-------------------	---	---

* Commission's Policy Statement on "Enhancing Public Participation in NRC Meetings," (67 FR 36920), May 28, 2002

PARTICIPANTS: Participants from the NRC include members of the Office of Nuclear Reactor Regulation (NRR) and Region II (RII)

NRC

E. Hackett J. Yerokun
J. Hannon C. Doult
D. Harrison L. Olshan
M. Ross-Lee C. Liang
J. Tatum

DUKE ENERGY

R. Gambrell
S. Newman
G. Davenport
D. Brewer
L. Kanipe

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

Attachments: 1. Agenda
2. NRC Evaluation of Duke's Risk-Informed Request to Revise the Oconee Licensing Basis for Tornado Mitigation

cc w/att: See next page

PARTICIPANTS: Participants from the NRC include members of the Office of Nuclear Reactor Regulation (NRR) and Region II (RII)

NRC

E. Hackett J. Yerokun
J. Hannon C. Douth
D. Harrison L. Olshan
M. Ross-Lee C. Liang
J. Tatum

DUKE ENERGY

R. Gambrell
S. Newman
G. Davenport
D. Brewer
L. Kanipe

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

Attachments: 1. Agenda
2. NRC Evaluation of Duke's Risk-Informed Request to Revise the Oconee Licensing Basis for Tornado Mitigation

cc w/att: See next page

DISTRIBUTION:

PUBLIC	RidsRgn2MailCenter	PDII-1 R/F
RidsNrrAdpt	RidsNrrDlpm	RidsNrrDlpmLpdii (EHackett)
TMensah	RidsNrrDlpmLpdii-1 (MRoss-Lee)	RidsOgcMailCenter
RidsNrrPMLOlshan	RidsAcrcAcnwMailCenter	RHogan, EDO
KClark	RidsNrrAdpt (KGrimes)	JYerokun
RidsOpaMail	Receptionist OWFN & TWFN	CDouth
RidsNrrLACHawes/DClarke	RidsNrrPMRMartin	CLiang
JHannon	PMNS	JTatum
DHarrison		

ADAMS Accession No.: ML042170133

NRC-001

OFFICE	PDII-1/PM	PDII-1/LA (A)	PDII-1/SC (A)
NAME	LOlshan	DClarke	MRoss-Lee
DATE	8/12/04	8/12/04	8/12/04

OFFICIAL RECORD COPY

MEETING WITH DUKE ENERGY CORPORATION

TO DISCUSS TORNADO MITIGATION

JULY 21, 2004

Measure for Success for the Meeting

- Achieve a common understanding with respect to the current licensing basis for tornado mitigation at Ocone
- Achieve a common understanding on how to move forward on this specific licensing action

AGENDA

8:00 a.m. - 8:15 a.m.	Opening remarks
8:15 a.m. - 11:30 a.m.	Discuss the items in Attachment 2
11:30 a.m.- 12:30 p.m.	Lunch
12:30 p.m.- 3:30 p.m.	Continue discussion of the items in Attachment 2
3:30 p.m. - 3:45 p.m.	Closing remarks
3:45 p.m.	Adjourn

EVALUATION OF DUKE'S RISK-INFORMED REQUEST
TO REVISE
THE OCONEE LICENSING BASIS FOR TORNADO MITIGATION

I. Current Licensing-Basis Criteria

- Vulnerabilities Recognized and Accepted by the NRC

II. Proposed Changes

- Other Embedded/Implied Changes

III. Evaluation Findings

- Standby Shutdown Facility (SSF) as Assured Means of Steam Generator (SG) Makeup
- Elimination of the High Pressure Injection/Spent Fuel Pool (HPI/SFP) Primary Makeup Flow Path
- Other Related Issues

IV. Conclusions

I. Current Licensing-Basis Criteria for Tornado Mitigation

- Essential Structures, Systems and Components and Electric Emergency Power Sources, “Have Been Designed, Fabricated, and Erected to Performance Standards That Will Enable the Facility to Withstand, Without Loss of Capability to Protect the Public, the Additional Forces That Might Be Imposed by Natural Phenomena. The Designs Are Based upon the Most Severe of the Natural Phenomena Recorded for the Vicinity of the Site, with Appropriate Margin to Account for Uncertainties in the Historical Data.”
- Safety Will Not Be Impaired by the Sharing of Systems Between the Oconee Units.
- A Tornado Is Not Allowed to Cause a Loss-of-Coolant Accident, and the Ability to Safely Shutdown All Three Units Is Provided.
- Failure of Structures and Components Not Designed for Tornado Loads Will Not Compromise the Ability to Safely Shutdown All Three Units.
- Others Established by the Post-Three Mile Island Action Plan Requirements (e.g. Reliability, Long-term Cooling)

I. Current Licensing-Basis Criteria for Tornado Mitigation - Continued

Vulnerabilities Recognized and Accepted by the NRC

- Emergency Feedwater (EFW) System of the Affected Unit
- Keowee Hydro Units
- Tornado Missile Vulnerabilities, Including:
 - Upper Surge Tank and Piping in the East and West Penetration Rooms for EFW of the Affected Unit.
 - Piping in the East and West Penetration Rooms for the Station Auxiliary Service Water (ASW) System.
 - A Small Portion of Piping in the West Penetration Room for the SSF ASW System.

II. Proposed Risk-Informed Changes

- Credit the SSF ASW System as the Assured Means of Providing SG Makeup (Harden West Penetration and Cask Decontamination Room Walls)
- Remove Credit from the Updated Final Safety Analysis Report for the Spent Fuel Pool (SFP) Suction Flow Path for HPI Primary Makeup

Other Embedded/Implied Changes

- Long-term Cooling Is Eliminated as a Consideration for Tornado Mitigation by Deleting the Updated Final Safety Analysis Report (UFSAR) Discussion of the 37-day SG Makeup Capability Provided by the Station ASW System
- The Capability of Station ASW to Provide SG Makeup for All Three Units as Currently Described in the UFSAR Is Relaxed to Only Credit Makeup Capability for a Single Unit

Other Embedded/Implied Changes - Continued

- Provides for Implicit Acceptance of New Tornado Vulnerabilities That Have Been Identified (Cumulative Increase in Core Damage Frequency on the Order of $8E(-6)/RY$)
 - Collective Tornado Effects That Fail the Borated Water Storage Tank and the West Penetration Room of a Particular Unit Coupled with the Failure of Electrical Connections Between the Standby and Main Feeder Buses for Multiple Units; $+2.8E(-6)$
 - Potential Loss of the 4160 Vac Standby Bus Feeders; $+2.5E(-6)$
 - Turbine Driven EFW Pump Cooling for All Units; $+1E(-6)$ Atmospheric Dump Valves (Required for Use of Station ASW); $+9E(-7)$
 - Limitations Associated with Use of the HPI/SFP Flow Path; $+6E(-7)$
 - Vulnerabilities Associated with the Battery Chargers of Multiple Units; $+6E(-7)$
 - Qualification of Pressurizer Safety Valves to Function as Assumed
 - SG Tube Differential Temperature Considerations
 - Unit 3 North Control Room Wall
 - Cask Decontamination Room Walls

III. Evaluation Findings

SSF ASW as the Assured Means of SG Makeup

- Risk Assessment Did Not Compare the Existing Licensing-Basis Capability to the Proposed Capability

3E(-5)
Decreasing
CDF

1E(-5)
Increasing
CDF

- Technical Specification (TS) Requirements for the SSF That are Commensurate with the Proposed Change Need to be Addressed (e.g., Existing 45-day AOT, SSF Diesel Fuel Oil Inventory)
- Defense-In-Depth Must be Addressed
 - Redundancy, Independence, and Diversity
 - Defenses Against Potential Common-cause Failures
 - Intent of the Licensing-Basis Criteria (e.g., Reliability, Long-term Cooling Considerations)

III. Evaluation Findings - Continued

Elimination of the HPD/SFP Flow Path for RCS Makeup

- The Capability of the SSF Reactor Coolant Makeup System (29 gpm per Unit) to Provide Sufficient Primary Makeup for Tornado Mitigation Must be Adequately Demonstrated
 - Worst-case Primary Makeup Requirements Must be Adequately Addressed (e.g., TS Limitations on Reactor Coolant System Leak Rate; Shrinkage Considerations Based on Limiting Cooldown Scenarios; Inventory Losses; Margin for Uncertainties)
 - SSF Considerations Relative to TS Requirements, Long-term Cooling, Reliability, and Mission Time Must be Adequately Addressed

Other Related Issues

- Tornado Impact on Unprotected Main Stream Lines
- Tornado Impact on Unprotected Piping in the East and West Penetration Rooms
- Consequences of Tornado Mitigation Strategy on SG Tube Stresses
- Use and Qualification of the Pressurizer Safety Valves
- The Existing Primary Makeup Capability as Described in the UFSAR Was Not Reviewed by the NRC; How it Satisfies the Licensing-Basis Criteria Must be Demonstrated

IV. CONCLUSIONS

- The Proposed Changes to Credit the SSF as the Assured Means of SG Makeup and to Credit the SSF for Primary Makeup Following a Tornado Need Additional Justification
- Consistency with the Existing Licensing Basis Relative to the Capability to Safely Shut Down All Three Units Following a Tornado Needs Additional Explanation

McGuire Nuclear Station
Catawba Nuclear Station
Oconee Nuclear Station

cc:

Ms. Lisa F. Vaughn
Duke Energy Corporation
422 South Church Street
Mail Code - PB05E
P.O. Box 1244
Charlotte, North Carolina 28201-1244

County Manager of Mecklenburg County
720 East Fourth Street
Charlotte, North Carolina 28202

Mr. C. Jeffrey Thomas, Manager
Regulatory Compliance
McGuire Nuclear Station
Duke Energy Corporation
12700 Hagers Ferry Road
Huntersville, North Carolina 28078

Anne Cottingham, Esquire
Winston and Strawn
1400 L Street, NW.
Washington, DC 20005

Senior Resident Inspector
U.S. Nuclear Regulatory Commission
12700 Hagers Ferry Road
Huntersville, North Carolina 28078

Mr. Peter R. Harden, IV, Vice President
Customer Relations and Sales
Westinghouse Electric Company
6000 Fairview Road, 12th Floor
Charlotte, North Carolina 28210

Dr. John M. Barry
Mecklenburg County
Department of Environmental Protection
700 N. Tryon Street
Charlotte, North Carolina 28202

Mr. Richard M. Fry, Director
Division of Radiation Protection
NC Dept. of Env., Health, & Nat. Resources
3825 Barrett Drive
Raleigh, North Carolina 27609-7721

Ms. Karen E. Long, Asst. Attorney General
NC Department of Justice
P.O. Box 629
Raleigh, North Carolina 27602

Mr. R. L. Gill, Jr., Manager
Nuclear Regulatory Issues
and Industry Affairs
Duke Energy Corporation
526 South Church Street - Mail Stop EC05P
Charlotte, North Carolina 28202

NCEM REP Program Manager
4713 Mail Service Center
Raleigh, North Carolina 27699-4713

Mr. T. Richard Puryear
Owners Group (NCEMC)
Catawba Nuclear Station
Duke Energy Corporation
4800 Concord Road
York, South Carolina 29745

Mr. Lee Keller, Manager
Regulatory Compliance
Catawba Nuclear Station
Duke Energy Corporation
4800 Concord Road
York, South Carolina 29745

North Carolina Municipal Power Agency
Number 1
1427 Meadowwood Boulevard
P.O. Box 29513
Raleigh, North Carolina 27626-0513

McGuire Nuclear Station
Catawba Nuclear Station
Oconee Nuclear Station

cc:

County Manager of York County
York County Courthouse
York, South Carolina 29745

Piedmont Municipal Power Agency
121 Village Drive
Greer, South Carolina 29651

Saluda River Electric
P.O. Box 929
Laurens, South Carolina 29360

Henry Porter, Assistant Director - DWM
Bureau of Solid and Hazardous Waste
Dept. of Health & Env. Control
2600 Bull Street
Columbia, South Carolina 29201-1708

NC Electric Membership Corporation
P.O. Box 27306
Raleigh, North Carolina 27611

Senior Resident Inspector
U.S. Nuclear Regulatory Commission
4830 Concord Road
York, South Carolina 29745

Manager, LIS
NUS Corporation
2650 McCormick Drive, 3rd Floor
Clearwater, Florida 34619-1035

Senior Resident Inspector
U.S. Nuclear Regulatory Commission
7812B Rochester Highway
Seneca, South Carolina 29672

Mr. Michael A. Schoppman
Framatome ANP
1911 North Ft. Myer Drive
Suite 705
Rosslyn, Virginia 22209

Mr. B. G. Davenport, Manager
Regulatory Compliance
Oconee Nuclear Site
Duke Energy Corporation
7800 Rochester Highway - MS ONO3RC
Seneca, South Carolina 29672

Mr. Dhiaa Jamil
Vice President
Catawba Nuclear Station
Duke Energy Corporation
4800 Concord Road
York, South Carolina 29745

Mr. G. R. Peterson, Vice President
McGuire Nuclear Station
Duke Energy Corporation
12700 Hagers Ferry Road
Huntersville, North Carolina 28078

Mr. Ronald A. Jones, Vice President
Oconee Nuclear Station
Duke Energy Corporation
7800 Rochester Highway
Seneca, South Carolina 29672

Ms. Mary Olson
Director of the Southeast Office
Nuclear Information and Resource Service
729 Haywood Road, 1-A
P.O. Box 7586
Asheville, North Carolina 28802

Henry Barron
Group Vice President, Nuclear Generation
and Chief Nuclear Officer
P.O. Box 1006-EC07H
Charlotte, NC 28201-1006