August 11, 2000

Mr. M.S. Tuckman
Executive Vice President
Nuclear Generation
Duke Energy Corporation
526 South Church Street
Charlotte, NC 28201-1006

SUBJECT: OCONEE NUCLEAR STATION, UNITS 1, 2, AND 3 RE: SUPPLEMENT 1 TO THE DUKE ENERGY CORPORATION RESPONSE TO NRC BULLETIN 88-08 (TAC NOS. MA1059, MA1060, AND MA1061)

Dear Mr. Tuckman:

On April 21, 1997, Oconee Unit 2, was shut down due to leakage from a through-wall crack located in the weld between the 2A1 high pressure injection (HPI) system normal makeup (NMU) line and the corresponding cold leg nozzle safe end. This crack was attributed to high cycle fatigue resulting from unanticipated thermal stratification cycling in the line. This thermal cycling was attributed to back-leakage through the system boundary stop check valves, combined with cross flow between a loop with an operating reactor coolant pump (RCP) and a loop with a non-operating RCP. Widely varying NMU flow and erratic HPI warming flow were also identified as significant contributing factors. However, the root cause of this event was not definitively established. Therefore, by letter dated July 28, 1997, Duke committed to evaluate this event as a supplement to the Duke response to NRC Bulletin 88-08, "Thermal Stresses in Piping Connected to the Reactor Coolant System," for Oconee Unit 2.

Subsequently, by letter dated February 26, 1998, Duke submitted Supplement 1 to the Duke Bulletin 88-08 response. Duke indicated that a plan was established to address this issue, consisting essentially of the following steps: (1) replacing the HPI/NMU stop check valves with separate gate and lift check valves (already implemented on all three plants); (2) changing operating procedures; (3) installing thermocouples, and recording and monitoring the temperature data to verify the effects of the changes during plant operation; and (4) performing an American Society of Mechanical Engineers Code Section III Class 1 fatigue analysis considering the combined effects of back flow/thermal cycling phenomena and the design basis transients. The recorded temperature data would be correlated with plant operational data to determine possible cause-and-effect relationships between plant operations and thermal transients. In addition, parametric thermal fluid flow studies would be conducted using computational fluid dynamics methods to assess the sensitivity of the thermal phenomena in the HPI/NMU lines to varying flows or operating conditions.

Duke has indicated that thermocouples were installed on both the HPI/NMU and the HPI/EI lines in Units 1 and 2, and on the HPI/NMU lines in Unit 3 during the Spring and Summer of 1997. Duke intends to continue the temperature monitoring efforts until refueling outages 1EOC18 (Spring 1999), 2EOC17 (Fall 1999), and 3EOC18 (Spring 2000). Duke will provide a final supplement to Bulletin 88-08 after completion of the monitoring effort and the related activities. This final supplement will be submitted by September 15, 2000.

The staff has reviewed the current supplement to Bulletin 88-08 and finds the proposed Duke actions acceptable. The final staff review of the Duke assessment of the failed weld piping data will be completed when Duke submits the final supplement to the Bulletin.

This action closes TAC Nos. MA1059, MA1060, and MA1061.

Sincerely,

/RA/

David E. LaBarge, Senior Project Manager, Section 1
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

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

cc w/encl: See next page

The staff has reviewed the current supplement to Bulletin 88-08 and finds the proposed Duke actions acceptable. The final staff review of the Duke assessment of the failed weld piping data will be completed when Duke submits the final supplement to the Bulletin.

This action closes TAC Nos. MA1059, MA1060, and MA1061.

Sincerely,

/RA/

David E. LaBarge, Senior Project Manager, Section 1
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

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

cc w/encl: See next page

Distribution:
PUBLIC
PD II-1 Rdg.
RidsNrrDlpmLpdii1
K. Manoly
M. Hartzman
CHawes (paper copy)
DLaBarge (paper copy)
RidsOgcRp
RidsAcrsAcnwMailCenter
RidsRgn2MailCenter

Document Name: G:\PDII-1\OCONEE\A1059 LTR.WPD

To receive a copy of this document, indicate in the box:
"**C**" = Copy without attachment/enclosure "**E**" = Copy with attachment/enclosure
"**N**" = No copy

OFFICE	PM:PDII/S1		LA:PDII/S1		SC:PDII/S1	
NAME	DLaBarge:cn		CHawes		REmch	
DATE	8/10/2000		8/10/2000		8/11/2000	

OFFICIAL RECORD COPY

cc:
Ms. Lisa F. Vaughn
Legal Department (PBO5E)
Duke Energy Corporation
422 South Church Street
Charlotte, North Carolina 28201-1006

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

Mr. Rick N. Edwards
Framatome Technologies
Suite 525
1700 Rockville Pike
Rockville, Maryland 20852-1631

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

Virgil R. Autry, Director
Division of Radioactive Waste Management
Bureau of Land and Waste Management
Department of Health and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201-1708

Mr. William R. McCollum, Jr.
Vice President, Oconee Site
Duke Energy Corporation
7800 Rochester Highway
Seneca, SC 29672

Mr. L. E. Nicholson
Compliance Manager
Duke Energy Corporation
Oconee Nuclear Site
7800 Rochester Highway
Seneca, South Carolina 29672

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

Mr. C. Jeffrey Thomas
Manager - Nuclear Regulatory Licensing
Duke Energy Corporation
526 South Church Street
Charlotte, North Carolina 28201-1006

Mr. Richard M. Fry, Director
Division of Radiation Protection
North Carolina Department of Environment, Health, and Natural Resources
3825 Barrett Drive
Raleigh, North Carolina 27609-7721

Mr. Steven P. Shaver
Senior Sales Engineer
Westinghouse Electric Company
5929 Carnegie Blvd.
Suite 500
Charlotte, North Carolina 28209