



Duke Energy Corporation
526 South Church Street
P.O. Box 1006
Charlotte, NC 28201-1006

September 18, 2003

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington D.C. 20555

Subject: Duke Energy Corporation
McGuire Nuclear Station Units 1 & 2
Docket Nos. 50-369, 370
Catawba Nuclear Station Units 1 & 2
Docket Nos. 50-413, 414
Oconee Nuclear Stations Units 1, 2 & 3
Docket Nos. 50-269, 270, 287
Response to NRC Bulletin 2003-02 LEAKAGE FROM REACTOR PRESSURE
VESSEL LOWER HEAD PENETRATIONS AND REACTOR COOLANT
PRESSURE BOUNDARY INTEGRITY

Pursuant to 10 CFR 50.54(f), this letter and its Enclosures provide Duke Energy Corporation's response to NRC Bulletin 2003-02 for the McGuire, Catawba and Oconee Nuclear Stations. This bulletin requested plant specific information as a result of NRC staff concerns regarding leakage from the reactor pressure vessel lower head penetrations and the reactor coolant pressure boundary integrity.

Responses are provided for the Requested Information of the Bulletin in Enclosures I, II, and III for McGuire, Catawba, and Oconee, respectively.

Duke Energy Corporation has made the following regulatory commitments in response to this bulletin:

McGuire, Catawba and Oconee Nuclear Stations will conduct a bare metal visual inspection of the reactor vessel lower head and 360 degrees around 100 percent of the Bottom Mounted Instrumentation penetrations. These inspections will be conducted during the next refueling outage for each unit.

If you have questions or need additional information, please contact Gregory S. Kent at (704) 373-6032.

Very truly yours,

W. R. McCollum, Jr.

ENCLOSURES

A109

W. R. McCollum, Jr. affirms that he is the person who subscribed his name to the foregoing statement, and that all the matters and facts set forth herein are true and correct to the best of his knowledge.


Senior Vice President
Nuclear Support

Subscribed and sworn to me: _____ 9-18-03
Date

Marquerite J. Watson
Notary Public
State of North Carolina; County of mecklenburg

My Commission Expires: _____ 8-1-04
Date



xc: L. A. Reyes
U.S. Nuclear Regulatory Commission Regional Administrator
Region II Atlanta Federal Center
61 Forsyth St., SW, Suite 23T85

R. E. Martin
NRC Senior Project Manager (CNS and MNS)
U.S. Nuclear Regulatory Commission
Mail Stop O-8 H12
Washington, DC 20555-0001

L. N. Olshan
NRC Project Manager (ONS)
U.S. Nuclear Regulatory Commission
Mail Stop O-8 H12
Washington, DC 20555-0001

J. B. Brady
Senior Resident Inspector (MNS)

E. F. Guthrie
Senior Resident Inspector (CNS)

M. C. Shannon
Senior Resident Inspector (ONS)

bx: L. F. Vaughn – PB05E
M. T. Cash – EC05O
C. J. Thomas – MG01RC
G. D. Gilbert – CN01RC
L. E. Nicholson – ON03RC
G. S. Kent – EC05O
K. L. Crane – MG01RC
K. E. Nicholson – CN01RC
J. E. Smith – ON03RC
J.M. Shuping – EC09O
D.E. Whitaker – EC09O
C.T. Alley – EC09O
M.R. Robinson - EC09O
W.O. Callaway – CN03SE
J.M. Brindle – CN03CE
T.E. Hawkins – CN03PS
J.F. Bumgarner – CN03PS
S.L. Mays – CN03SE
T.A. Moore – MG05EE
T.G. Foster – MG05SE
V.J. Thompson – MG05SE
R. Branch – MG01MM
R.K. Emory – ON03MC
D.W. Peltola – ON03MC
G.I. Ottman – ON03MS
V.B. Dixon – ON01M7
Catawba RGC Data File
Catawba Master File 801.01
McGuire Master File 801.01
Oconee Master File 801.01
ELL

Saluda River Electric Corporation
P.O. Box 929
Laurens, SC 29360-0929

NC Municipal Power Agency No. 1
P.O. Box 29513
Raleigh, NC 27626-0513

T. R. Puryear
NC Electric Membership Corporation
CN03G

Piedmont Municipal Power Agency
121 Village Drive
Greer, SC 29651

**Enclosure I
McGuire Nuclear Station**

Requested Information:

(1) All subject PWR addressees are requested to provide the following information. The responses for facilities that will enter refueling outages before December 31, 2003, should be provided within 30 days of the date of this bulletin. All other responses should be provided within 90 days of the date of this bulletin.

(a) A description of the RPV lower head penetration inspection program that has been implemented at your plant. The description should include when the inspections were performed, the extent of the inspections with respect to the areas and penetrations inspected, inspection methods used, the process used to resolve the source of findings of any boric acid deposits, the quality of the documentation of the inspections (e.g., written report, video record, photographs), and the basis for concluding that your plant satisfies applicable regulatory requirements related to the integrity of the RPV lower head penetrations.

Duke Response:

During each refueling outage prior to unit start up, an ASME Code required inservice inspection pressure test is conducted at operating temperature and pressure. The inspection includes visual examination of the area below the reactor vessel, including the bottom surface of the reactor vessel insulation, and incore instrument tubing passing through the vessel insulation. The inspection is conducted by visual examination using a VT-2 qualified inspector. Results of the inspections are documented in the work orders and procedures used.

The McGuire Bottom Mounted Instrumentation (BMI) penetrations were designed and tested in accordance with applicable codes and standards. In addition, McGuire has established programs and procedures to control the operation, inspection, and maintenance associated with the BMI penetrations. If unacceptable conditions are identified, they will be resolved through Duke's corrective action program. The combination of these actions are intended to ensure continued compliance with regulatory requirements related to the integrity of the RPV lower head penetrations.

Requested Information:

(1) All subject PWR addressees are requested to provide the following information. The responses for facilities that will enter refueling outages before December 31, 2003, should be provided within 30 days of the date of this bulletin. All other responses should be provided within 90 days of the date of this bulletin.

(b) A description of the RPV lower head penetration inspection program that will be implemented at your plant during the next and subsequent refueling outages. The description should include the extent of the inspections which will be conducted with respect to the areas and penetrations to be inspected, inspection methods to be used, qualification standards for the inspection methods, the process used to resolve

the source of findings of boric acid deposits or corrosion, the inspection documentation to be generated, and the basis for concluding that your plant will satisfy applicable regulatory requirements related to the structural and leakage integrity of the RPV lower head penetrations.

Duke Response:

McGuire will conduct a bare metal visual inspection of the reactor vessel lower head and 360 degrees around 100 percent of the BMI penetrations. These inspections will be conducted during the next refueling outage for each unit (Unit 2 Fall 2003 and Unit 1 Spring 2004). The bare metal visual inspection will be performed and documented in accordance with written procedures and acceptance criteria. Inspections will be conducted by qualified personnel. Electronic recording media will be utilized where applicable. The basis for concluding that McGuire satisfies applicable regulatory requirements was provided in Duke's response to 1(a) of this bulletin. Additionally, any condition adverse to quality identified during these bare metal visual inspections will be resolved through the corrective action program.

McGuire will determine the inspections of the reactor vessel lower head to be performed at subsequent refueling outages based on McGuire's inspection findings and industry developments concerning BMI nozzles.

**Enclosure II
Catawba Nuclear Station**

Requested Information:

(1) All subject PWR addressees are requested to provide the following information. The responses for facilities that will enter refueling outages before December 31, 2003, should be provided within 30 days of the date of this bulletin. All other responses should be provided within 90 days of the date of this bulletin.

(a) A description of the RPV lower head penetration inspection program that has been implemented at your plant. The description should include when the inspections were performed, the extent of the inspections with respect to the areas and penetrations inspected, inspection methods used, the process used to resolve the source of findings of any boric acid deposits, the quality of the documentation of the inspections (e.g., written report, video record, photographs), and the basis for concluding that your plant satisfies applicable regulatory requirements related to the integrity of the RPV lower head penetrations.

Duke Response:

During each refueling outage prior to unit start up, an ASME Code required inservice inspection pressure test is conducted at operating temperature and pressure. The inspection includes visual examination of the area below the reactor vessel, including the bottom surface of the reactor vessel insulation, and incore instrument tubing passing through the vessel insulation. The inspection is conducted by visual examination using a VT-2 qualified inspector. Results of the inspections are documented in the work orders and procedures used.

In March, 2003, during refueling outage 2EOC12 at Catawba, boron deposits were identified on the bottom reactor vessel insulation and incore guidetubes. Engineering performed a visual inspection of the bottom bare metal surface of the reactor vessel, the incore penetrations and tubing, the reactor vessel insulation, and the adjoining walls of the incore instrumentation room. Subsequent evaluation, including isotopic analysis, determined the boron deposits to be from reactor cavity seal leakage that occurred at 2EOC12 refueling outage. No evidence of wastage of the bottom of the reactor was visible. The inspection and evaluation were documented in the Duke corrective action program.

The Catawba Bottom Mounted Instrumentation (BMI) penetrations were designed and tested in accordance with applicable codes and standards. In addition, Catawba has established programs and procedures to control the operation, inspection, and maintenance associated with the BMI penetrations. If unacceptable conditions are identified, they will be resolved through Duke's corrective action program. The combination of these actions are intended to ensure continued compliance with regulatory requirements related to the integrity of the RPV lower head penetrations.

Requested Information:

(1) All subject PWR addressees are requested to provide the following information. The responses for facilities that will enter refueling outages before December 31, 2003, should be provided within 30 days of the date of this bulletin. All other responses should be provided within 90 days of the date of this bulletin.

(b) A description of the RPV lower head penetration inspection program that will be implemented at your plant during the next and subsequent refueling outages. The description should include the extent of the inspections which will be conducted with respect to the areas and penetrations to be inspected, inspection methods to be used, qualification standards for the inspection methods, the process used to resolve the source of findings of boric acid deposits or corrosion, the inspection documentation to be generated, and the basis for concluding that your plant will satisfy applicable regulatory requirements related to the structural and leakage integrity of the RPV lower head penetrations.

Duke Response:

Catawba will conduct a bare metal visual inspection of the reactor vessel lower head and 360 degrees around 100 percent of the BMI penetrations. These inspections will be conducted during the next refueling outage for each unit (Unit 1 Fall 2003 and Unit 2 Fall 2004). The bare metal visual inspection will be performed and documented in accordance with written procedures and acceptance criteria. Inspections will be conducted by qualified personnel. Electronic recording media will be utilized where applicable. The basis for concluding that Catawba satisfies applicable regulatory requirements was provided in Duke's response to 1(a) of this bulletin. Additionally, any condition adverse to quality identified during these bare metal visual inspections will be resolved through the corrective action program.

Catawba will determine the inspections of the reactor vessel lower head to be performed at subsequent refueling outages based on Catawba's inspection findings and industry developments concerning BMI nozzles.

**Enclosure III
Oconee Nuclear Station**

Requested Information:

(1) All subject PWR addressees are requested to provide the following information. The responses for facilities that will enter refueling outages before December 31, 2003, should be provided within 30 days of the date of this bulletin. All other responses should be provided within 90 days of the date of this bulletin.

(a) A description of the RPV lower head penetration inspection program that has been implemented at your plant. The description should include when the inspections were performed, the extent of the inspections with respect to the areas and penetrations inspected, inspection methods used, the process used to resolve the source of findings of any boric acid deposits, the quality of the documentation of the inspections (e.g., written report, video record, photographs), and the basis for concluding that your plant satisfies applicable regulatory requirements related to the integrity of the RPV lower head penetrations.

Duke Response:

During each refueling outage prior to unit start up, an ASME Code required inservice inspection pressure test is conducted at operating temperature and pressure. The inspection includes visual examination of the area below the reactor vessel, including the bottom surface of the reactor vessel insulation, and incore instrument tubing passing through the vessel insulation. The inspection is conducted by visual examination using a VT-2 qualified inspector. Results of the inspections are documented in the work orders and procedures used.

Oconee Engineering conducted walkdowns of the area beneath the reactor vessel during the previous refueling outage for each unit. The purpose was to confirm the configuration of the area and to identify obstacles to a bare metal visual examination of the bottom of the reactor. These inspections were conducted as follows: Unit 1 – April 2002; Unit 2 – October 2002; Unit 3 – May 2003. Visual inspection included all accessible lower surface area of the vessel insulation and the incore tubing passing through the insulation. Inspection was by direct visual examination. No deposits were found that were indicative of borated water leakage from the incore penetrations. The Unit 1 inspection was documented by memorandum. The inspections for Units 2 and 3 were documented in procedure data sheets.

The Oconee Bottom Mounted Instrumentation (BMI) penetrations were designed and tested in accordance with applicable codes and standards. In addition, Oconee has established programs and procedures to control the operation, inspection, and maintenance associated with the BMI penetrations. If unacceptable conditions are identified, they will be resolved through Duke's corrective action program. The combination of these actions are intended to ensure continued compliance with regulatory requirements related to the integrity of the RPV lower head penetrations.

Requested Information:

(1) All subject PWR addressees are requested to provide the following information. The responses for facilities that will enter refueling outages before December 31, 2003, should be provided within 30 days of the date of this bulletin. All other responses should be provided within 90 days of the date of this bulletin.

(b) A description of the RPV lower head penetration inspection program that will be implemented at your plant during the next and subsequent refueling outages. The description should include the extent of the inspections which will be conducted with respect to the areas and penetrations to be inspected, inspection methods to be used, qualification standards for the inspection methods, the process used to resolve the source of findings of boric acid deposits or corrosion, the inspection documentation to be generated, and the basis for concluding that your plant will satisfy applicable regulatory requirements related to the structural and leakage integrity of the RPV lower head penetrations.

Duke Response:

Oconee will conduct a bare metal visual inspection of the reactor vessel lower head and 360 degrees around 100 percent of the BMI penetrations. These inspections will be conducted during the next refueling outage for each unit (Unit 1 Fall 2003, Unit 2 Spring 2004 and Unit 3 Fall 2004). The bare metal visual inspection will be performed and documented in accordance with written procedures and acceptance criteria. Inspections will be conducted by qualified personnel. Electronic recording media will be utilized where applicable. The basis for concluding that Oconee satisfies applicable regulatory requirements was provided in Duke's response to 1(a) of this bulletin. Additionally, any condition adverse to quality identified during these bare metal visual inspections will be resolved through the corrective action program.

Oconee will determine the inspections of the reactor vessel lower head to be performed at subsequent refueling outages based on Oconee's inspection findings and industry developments concerning BMI nozzles.