

September 30, 2006

Mr. H. B. Barron  
Group Vice President,  
Nuclear Generation  
and Chief Nuclear Officer  
Duke Power Company LLC  
P.O. Box 1006-EC07H  
Charlotte, NC 28201-1006

SUBJECT: CATAWBA NUCLEAR STATION, UNITS 1 AND 2, AND MCGUIRE NUCLEAR STATION, UNITS 1 AND 2, ISSUANCE OF AMENDMENTS TO FACILITY OPERATING LICENSES CONCERNING REACTOR COOLANT SYSTEM LEAKAGE DETECTION INSTRUMENTATION (TAC NOS. MC8041, MC8042, MC8043 AND MC8044)

Dear Mr. Barron:

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 234 to Renewed Facility Operating License NPF-35 and Amendment No. 230 to Renewed Facility Operating License NPF-52 for the Catawba Nuclear Station (Catawba), Units 1 and 2, and Amendment No. 235 to Renewed Facility Operating License NPF-9 and Amendment No. 217 to Renewed Facility Operating License NPF-17 for the McGuire Nuclear Station (McGuire), Units 1 and 2, respectively. The amendments consist of changes to the Technical Specifications (TSs) in response to your application dated July 27, 2005, as supplemented by letters dated May 4, 2006 and August 8, 2006.

The amendments revise the Catawba and McGuire Technical Specification 3.4.15, "RCS Leakage Detection Instrumentation."

H. Barron

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A copy of the related Safety Evaluation is also enclosed. A Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,

**/RA/**

John Stang, Senior Project Manager  
Plant Licensing Branch II-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-413, 50-414, 50-369 and 50-370

Enclosures:

1. Amendment No. 234 to NPF-35
2. Amendment No. 230 to NPF-52
3. Amendment No. 235 to NPF-9
4. Amendment No. 217 to NPF-17
5. Safety Evaluation

cc w/encls: See next page

H. Barron

-2-

A copy of the related Safety Evaluation is also enclosed. A Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,

**/RA/**

John Stang, Senior Project Manager  
Plant Licensing Branch II-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

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4. Amendment No. 217 to NPF-17
5. Safety Evaluation

cc w/encls: See next page

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Tech Spec No. ML062900353 & ML062900356

OFFICE	<del>NRR/LPL2-1</del>	NRR/LPL2-1/PM	NRR/LPL2-1/LA	NRR/SBPB	NRR/EICB
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DATE	<del>1 /06</del>	9/29/06	9/29/06	9 /25 /06	9 /21/06

NRR/CFEB	OGC	NRR/LPLC/BC
KGruss	JMartin	EMarinos
9/21/06	9/18/06	9/29/06

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Catawba Nuclear Station,  
McGuire Nuclear Station

cc: w/encls.

Ms. Lisa F. Vaughn  
Duke Power Company LLC  
526 South Church Street  
P. O. Box 1006  
Mail Code - EC07H  
Charlotte, North Carolina 28201-1006

County Manager of Mecklenburg County  
720 E. Fourth St.  
Charlotte, NC 28202

Mr. C. Jeffrey Thomas  
Manager Regulatory Compliance  
Duke Power Company LLC  
McGuire Nuclear Site  
12700 Hagers Ferry Road  
Huntersville, NC 28078

Senior Resident Inspector (McGuire)  
U.S. Nuclear Regulatory Commission  
12700 Hagers Ferry Road  
Huntersville, NC 28078

Mr. Peter R. Harden, IV  
VP-Customer Relations and Sales  
Westinghouse Electric Company  
6000 Fairview Road  
12th Floor  
Charlotte, NC 28210

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

Division of Radiation Protection  
NC Dept of Environment, Health, & Natural  
Resources  
3825 Barrett Dr.  
Raleigh, NC 27609-7721

Mr. Leonard G. Green  
Asst Attorney General  
NC Dept of Justice  
P.O. Box 629  
Raleigh, NC 27602

Mr. R.L. Gill, Jr., Manager  
Nuclear Regulatory Issues & Industry  
Affairs  
Duke Power Company LLC  
526 S. Church St.  
Mail Stop EC05P  
Charlotte, NC 28202

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

Mr. T. Richard Puryear  
Owners Group (NCEMC)  
Duke Power Company LLC  
4800 Concord Road  
York, SC 29745

Mr. Lee Keller, Manager  
Regulatory Compliance  
Duke Power Company LLC  
4800 Concord Road  
York, South Carolina 29745

Catawba Nuclear Station  
McGuire Nuclear Station

cc: w/encls.  
NC Municipal Power Agency No. 1  
1427 Meadowwood Boulevard  
P.O. Box 29513  
Raleigh, NC 27626

County Manager of York County  
York County Courthouse  
York, SC 29745

Piedmont Municipal Power Agency  
121 Village Dr.  
Greer, SC 29651

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

Mr. Henry Porter, Assistant Director  
Division of Waste Management  
Bureau of Land and Waste Management  
Dept of Health & Environmental Control  
2600 Bull St.  
Columbia, SC 29201-1708

NC Electric Membership Corp.  
P.O. Box 27306  
Raleigh, NC 27611

Senior Resident Inspector (Catawba)  
U.S. Nuclear Regulatory Commission  
4830 Concord Road  
York, SC 29745

Mr. Dhiaa Jamil  
Vice President  
Catawba Nuclear Station  
Duke Power Company LLC  
4800 Concord Road  
York, SC 29745

Mr. G.R. Peterson  
Vice President  
McGuire Nuclear Station  
Duke Power Company LLC  
12700 Hagers Ferry Road  
Huntersville, NC 28078

DUKE POWER COMPANY LLC  
NORTH CAROLINA ELECTRIC MEMBERSHIP CORPORATION  
SALUDA RIVER ELECTRIC COOPERATIVE, INC.  
DOCKET NO. 50-413  
CATAWBA NUCLEAR STATION, UNIT 1  
AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 234  
Renewed License No. NPF-35

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment to the Catawba Nuclear Station, Unit 1 (the facility) Renewed Facility Operating License No. NPF-35 filed by the Duke Power Company LLC, acting for itself, North Carolina Electric Membership Corporation and Saluda River Electric Cooperative, Inc. (licensees), application dated July 27, 2005, as supplemented by letters dated May 4, 2006, and August 8, 2006, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations as set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations set forth in 10 CFR Chapter I;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is hereby amended by page changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Renewed Facility Operating License No. NPF-35 is hereby amended to read as follows:

- (2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 234, which are attached hereto, are hereby incorporated into this license. Duke Power Company LLC shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

***/RA/***

Evangelos C. Marinos, Chief  
Plant Licensing Branch II-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to License No. NPF-35  
and the Technical Specifications

Date of Issuance: September 30, 2006

DUKE POWER COMPANY LLC  
NORTH CAROLINA MUNICIPAL POWER AGENCY NO. 1  
PIEDMONT MUNICIPAL POWER AGENCY  
DOCKET NO. 50-414  
CATAWBA NUCLEAR STATION, UNIT 2  
AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 230  
Renewed License No. NPF-52

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment to the Catawba Nuclear Station, Unit 2 (the facility) Renewed Facility Operating License No. NPF-52 filed by the Duke Power Company LLC, acting for itself, North Carolina Municipal Power Agency No. 1 and Piedmont Municipal Power Agency (licensees), application dated July 27, 2005, as supplemented by letters dated May 4, 2006, and August 8, 2006, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations as set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations set forth in 10 CFR Chapter I;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is hereby amended by page changes to the Technical Specifications as indicated in the attachment to this license amendment, and Paragraph 2.C.(2) of Renewed Facility Operating License No. NPF-52 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 230, which are attached hereto, are hereby incorporated into this license. Duke Power Company LLC shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

*/RA/*

Evangelos C. Marinos, Chief  
Plant Licensing Branch II-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to License No. NPF-52  
and the Technical Specifications

Date of Issuance: September 30, 2006

ATTACHMENT TO LICENSE AMENDMENT NO. 234  
RENEWED FACILITY OPERATING LICENSE NO. NPF-35  
DOCKET NO. 50-413  
AND LICENSE AMENDMENT NO. 230  
RENEWED FACILITY OPERATING LICENSE NO. NPF-52  
DOCKET NO. 50-414

Replace the following pages of the Renewed Facility Operating Licenses and the Appendix A Technical Specifications (TSs) with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

<u>Remove</u>	<u>Insert</u>
<u>License Pages</u> NPF-35, Page-4 NPF-52, Page-4	<u>License Pages</u> NPF-35, Page-4 NPF-52, Page-4
<u>TS Pages</u> 3.4.15-1 3.4.15-2 3.4.15-3 B 3.4.15-1 B 3.4.15-2 B 3.4.15-3 B 3.4.15-4 B 3.4.15-5 B 3.4.15-6 B 3.4.15-7 B 3.4.15-8 B 3.4.15-9	<u>TS Pages</u> 3.4.15-1 3.4.15-2 3.4.15-3 B 3.4.15-1 B 3.4.15-2 B 3.4.15-3 B 3.4.15-4 B 3.4.15-5 B 3.4.15-6 B 3.4.15-7 B 3.4.15-8 B 3.4.15-9

DUKE POWER COMPANY LLC

DOCKET NO. 50-369

MCGUIRE NUCLEAR STATION, UNIT 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 235  
Renewed License No. NPF-9

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment to the McGuire Nuclear Station, Unit 1 (the facility), Renewed Facility Operating License No. NPF-9, filed by the Duke Power Company LLC (licensee), application dated July 27, 2005, as supplemented by letters dated May 4, 2006, and August 8, 2006, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations as set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations set forth in 10 CFR Chapter I;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is hereby amended by page changes to the Technical Specifications as indicated in the attachment to this license amendment, and Paragraph 2.C.(2) of Renewed Facility Operating License No. NPF-9 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 217, are hereby incorporated into this license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

***/RA/***

Evangelos C. Marinos, Chief  
Plant Licensing Branch II-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to License No. NPF-9  
and the Technical Specifications

Date of Issuance: September 30, 2006

DUKE POWER COMPANY LLC

DOCKET NO. 50-370

MCGUIRE NUCLEAR STATION, UNIT 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 217  
Renewed License No. NPF-17

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment to the McGuire Nuclear Station, Unit 2 (the facility), Renewed Facility Operating License No. NPF-17, filed by the Duke Power Company LLC (the licensee), application dated July 27, 2005, as supplemented by letters dated May 4, 2006, and August 8, 2006, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations as set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations set forth in 10 CFR Chapter I;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is hereby amended by page changes to the Technical Specifications as indicated in the attachment to this license amendment, and Paragraph 2.C.(2) of Renewed Facility Operating License No. NPF-17 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 217, are hereby incorporated into this license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

***/RA/***

Evangelos C. Marinos, Chief  
Plant Licensing Branch II-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to License No. NPF-17  
and the Technical Specifications

Date of Issuance: September 30, 2006

ATTACHMENT TO LICENSE AMENDMENT NO. 235  
RENEWED FACILITY OPERATING LICENSE NO. NPF-9  
DOCKET NO. 50-369  
AND TO LICENSE AMENDMENT NO. 217  
RENEWED FACILITY OPERATING LICENSE NO. NPF-17  
DOCKET NO. 50-370

Replace the following pages of the Renewed Facility Operating License and Appendix A Technical Specifications (TSs) with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

<u>Remove</u>	<u>Insert</u>
<u>License Pages</u>	<u>License Pages</u>
NPF-9, page 3	NPF-9, page 3
NPF-17, page 3	NPF-17, page 3
<u>TS Pages</u>	<u>TS Pages</u>
3.4.15-1	3.4.15-1
3.4.15-2	3.4.15-2
3.4.15-3	3.4.15-3
-	3.4.15-4
B 3.4.15-1	B 3.4.15-1
B 3.4.15-2	B 3.4.15-2
B 3.4.15-3	B 3.4.15-3
B 3.4.15-4	B 3.4.15-4
B 3.4.15-5	B 3.4.15-5
B 3.4.15-6	B 3.4.15-6
B 3.4.15-7	B 3.4.15-7
B 3.4.15-8	B 3.4.15-8
B 3.4.15-9	B 3.4.15-9
B 3.4.15-10	

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO

AMENDMENT NO. 234 TO RENEWED FACILITY OPERATING LICENSE NPF-35

AMENDMENT NO. 230 TO RENEWED FACILITY OPERATING LICENSE NPF-52

AMENDMENT NO. 235 TO RENEWED FACILITY OPERATING LICENSE NPF-9

AND

AMENDMENT NO. 217 TO RENEWED FACILITY OPERATING LICENSE NPF-17

DUKE POWER COMPANY LLC

CATAWBA NUCLEAR STATION, UNITS 1 AND 2

MCGUIRE NUCLEAR STATION, UNITS 1 AND 2

DOCKET NOS. 50-413, 50-414, 50-369 AND 50-370

1.0 INTRODUCTION

By application dated July 27, 2005, (Agencywide Documents Access and Management System (ADAMS) Accession No. ML052200436), as supplemented by letters dated May 4, 2006 (ADAMS Accession No. ML061360129), and August 8, 2006 (ADAMS Accession No. ML062290245), Duke Power Company LLC (Duke, the licensee), requested changes to the Technical Specifications (TSs) for the Catawba Nuclear Station, Units 1 and 2 (Catawba 1 and 2) and the McGuire Nuclear Station, Units 1 and 2 (McGuire 1 and 2). The supplements dated May 4, 2006, and August 8, 2006, provided additional information that clarified the application, did not expand the scope of the application, and did not change the staff's original no significant hazards consideration determination as published the *Federal Register* on August 30, 2006 (71 FR 51644).

The amendment request was submitted following the licensee's discovery that the containment airborne gaseous radioactivity monitoring capability would be unlikely to meet current licensing bases for response to early detection of reactor coolant system (RCS) leakage. This condition was the subject of the Nuclear Regulatory Commission (NRC) Information Notice (IN) 2005-24, "Non-conservatism in Leakage Detection Sensitivity," (ADAMS Accession No. ML051780073). The following is quoted from IN 2005-24, "because of improvements in fuel performance and RCS chemistry control, the actual RCS source term can be orders of magnitude smaller."

The licensee has evaluated the design and licensing bases for the RCS leak detection systems and has proposed to change the bases to accurately reflect plant capability. For McGuire 1 and 2 and Catawba 1 and 2 the amendment revises TS 3.4.15, "RCS Leakage Detection Instrumentation."

## 2.0 REGULATORY EVALUATION

RCS leakage monitoring is important to assure that the RCS is maintaining integrity as a pressure retaining system. NUREG-0800, Standard Review Plan (SRP), Section 5.2.5, "Reactor Coolant Pressure Boundary Leakage Detection," acceptance criteria states that ..."the design of the system is acceptable if ...the system is in accordance with...General Design Criterion 30...based on meeting the guidelines of Regulatory Guide 1.45...."

Part 50 of Title 10 of the *Code of Federal Regulations* (10 CFR), Appendix A, General Design Criterion 30, "Quality of reactor coolant pressure boundary," requires in part that, means be provided for detecting, and identifying the location of the source of reactor coolant leakage. Regulatory Guide (RG) 1.45, "Reactor Coolant Pressure Boundary Leakage Detection Systems," describes acceptable methods of implementing this requirement with regard to the selection of leakage detection systems for the reactor coolant boundary. The position of RG 1.45 is that at least three different detection methods should be employed. Two of these methods should be: (1) sump level and flow monitoring and (2) airborne particulate radioactivity monitoring. The third method may involve either monitoring of condensate flow rate from air coolers or monitoring of gaseous radioactivity. The RG recommends that the sensitivity and response time of each leakage detection system employed for unidentified leakage should be adequate to detect a leakage rate, or its equivalent, of one gallon per minute (gpm) in less than one hour. RG 1.45 further recognizes that some methods, such as radiation monitors may be of limited value in providing early warning of very small leaks during certain periods of operation. The RG recognizes that other detection methods may be developed although it does not explicitly suggest substitution of alternate methods in lieu of the recommended methods.

The RCS leakage monitoring also involves the leak-before-break (LBB) concept. The NRC applies the LBB concept to the primary piping systems under the broad-scope revision to 10 CFR Part 50, Appendix A, General Design Criterion (GDC) 4 (Volume 52 of the *Federal Register* pages 41288-41295, October 27, 1987). Specific guidance on the LBB evaluation is discussed in draft SRP 3.6.3, "Leak-Before-Break Evaluation Procedures." Additional guidance can be found in NUREG-1061, Volume 3, "Report of the U.S. Nuclear Regulatory Commission Piping Review Committee—Evaluation of Potential for Pipe Break."

The LBB analysis for large diameter primary piping such as McGuire 1 and 2, and Catawba 1 and 2, predicts leak rates for postulated leakage flaws. Based on the predicted leak rates, the NRC determines the adequacy of the RCS leakage detection capabilities of the leakage monitoring equipment to support the LBB concept of operational leakage monitoring.

### 3.0 TECHNICAL EVALUATION

Within this amendment, the licensee is proposing TS changes to:

1. Add an incore instrument (ICI) sump level alarm to limiting condition for operation (LCO) 3.4.15 with associated action and surveillance requirements,
2. Remove the containment atmosphere gaseous radioactivity monitor for RCS leakage detection instrumentation from the existing TS, and specify the containment atmosphere particulate radioactivity monitor as required equipment,
3. Change the applicability of the LCO for the containment atmosphere particulate radiation monitor to Mode 1 only,
4. Allow the use of grab samples as alternate required compensatory measures when the containment atmosphere particulate radiation monitor or the containment ventilation unit condensate drain tank (CVUCDT) are inoperable,
5. Required Action A.I, where a Note is added to state that surveillance requirement (SR) 3.4.13.1 (RCS water inventory calculation) is not required to be performed until 12 hours after establishment of steady state operation. Additionally, a new Condition E is added to the McGuire 1 and 2, and Catawba 1 and 2, TSs to specify the performance of an RCS mass balance when the newly added ICI sump level alarm is inoperable.

#### 3.1 Adding ICI Sump Level as RCS Leakage Indication

The ICI sump level instrumentation is not currently covered by the TS, or discussed in detail in the current license basis in regard to reactor coolant leakage detection. The licensee has concluded that it should be controlled by the TSs and included in the McGuire 1 and 2, and Catawba 1 and 2, licensing bases since it serves as a diverse means of detecting RCS leakage and contributes to ensuring the integrity of the reactor coolant pressure boundary.

The current TS 3.4.15 requires that the containment floor and equipment (CFAE) sump level monitoring instrumentation be operable to meet the TS requirements for the RCS leakage detection instrumentation. The Bases for this TS states that measurement of the CFAE sump level serves as the primary method of detecting leakage into the containment. The McGuire 1 and 2 Updated Final Safety Analysis Report (UFSAR), Section 5.2.7, and Catawba 1 and 2, UFSAR, Section 5.2.5 identify design features for detecting leakage inside containment. However, in describing the leakage detection systems, the UFSARs do not discuss the ICI area in detail. The ICI sump is located under the reactor vessel. It is reasonable to conclude that the RG intends for the sump level instrumentation to reflect the cumulative leakage to the floor throughout the containment building. This would include the area inside the crane wall, the pipe chase, and the ICI area.

Although the licensee has determined that the level of instrumentation in the ICI sump would not detect one gallon per minute within 1 hour until initial accumulated leakage reached the sump, the ICI sump is an addition to the existing TS required CFAE sump instrumentation. The ICI sump is included in the action statement as part of the sump system, and would require entry into the action statement if either the CFAE sump or the ICI sump become inoperable.

The addition of a new calibration SR 3.4.15.6, is appropriate for the instrument. The SR is given the same periodicity as the other TS RCS leak detection equipment. Thus the staff finds that these changes are acceptable, and will complement the ability of the CFAE indication and provide additional coverage to leakage sources in the containment buildings of Catawba 1 and 2 and McGuire 1 and 2.

### 3.2 Containment Atmosphere Radioactivity Monitors as RCS Leakage Indication

For McGuire 1 and 2, the current TS 3.4.15 requires that one containment atmosphere gaseous radioactivity monitor and either the containment ventilation unit condensate drain tank (CVUCDT) level monitor or the containment atmosphere particulate radioactivity monitor be operable. For Catawba 1 and 2, the current TS 3.4.15 requires that one containment atmosphere radioactivity monitor (gaseous or particulate) and one CVUCDT level monitor be operable as well.

The licensee has stated that due to improved fuel integrity and resulting reduced RCS radioactivity levels, the gaseous channel of the containment atmosphere radiation monitor has become less effective for RCS leakage detection and cannot meet the originally accepted basis for the equivalent of detecting one gallon per minute within 1 hour. Therefore, the gaseous monitor is being deleted from the TSs. Following implementation of this amendment, the containment atmosphere radioactivity monitoring requirement of LCO 3.4.15 will be fulfilled by the particulate channel.

TSs for both Catawba 1 and 2, and McGuire 1 and 2, require three leakage detection methods. The gaseous radiation monitor is used as an alternate method at McGuire 1 and 2, and at Catawba 1 and 2, it is replaced by the particulate monitor, which is currently an alternate method. At both plants the gaseous radiation monitor is removed from the TSs, but is available and maintains its function at the plant to provide operators qualitative information as an additional diverse method. Additionally, the RG 1.45 identifies the particulate monitor as a primary method which is likely to be more sensitive. The revised TS still requires three diverse methods, which are consistent with RG 1.45. Therefore, removing the gaseous radiation monitor and maintaining the particulate radiation monitor in the TS is acceptable.

### 3.3 Changing the Mode Applicability for the Particulate Radiation Monitor

The licensee has determined that the containment atmosphere particulate radiation monitor becomes less reliable in its ability to meet the RG 1.45 guidance, as power level is reduced, due to the decrease in radioactivity with power level. The licensee has stated that the containment atmosphere particulate monitor has the fastest response time and calculated that under probable operating conditions, the time it would take to detect a one-gpm leak ranges from 1 to 10 hours, which corresponds to 100% power and hot zero power operating conditions respectively. The particulate radiation monitor cannot meet the guidance of RG 1.45 in modes 2, 3, and 4. The licensee has requested a change to the applicability of the LCO for the containment atmosphere particulate radiation monitor such that it will not be required in modes 2, 3 and 4.

The resulting TS for Catawba 1 and 2, and McGuire 1 and 2, will require that three leakage detection methods are applicable in mode 1. This meets the guidance provided in RG 1.45. In modes 2, 3, and 4 the proposed change would reduce the TS-required RCS leakage monitoring

to two methods, sump level and CVUCDT. The licensee has stated that the two remaining detection methods meet the guidance of RG 1.45, which states that they should be capable of detecting one gpm within 1 hour. The two leakage detection methods are able to provide early indication of leakage and diversity of leak detection as stated in RG 1.45.

The licensee stated that the containment atmosphere particulate monitor will continue to be maintained and available as an operator aid during modes 2, 3 and 4. This provides an additional means of RCS leakage indication, albeit non-TS-required. (Additional non-TS indicates plant operators have to detect RCS leakage is volume control tank level, containment gaseous radioactivity and humidity changes.)

In addition, the licensee has identified that the LBB analyses for Catawba 1 and 2, and McGuire 1 and 2, provide an adequate margin between the critical flaw size and the postulated leakage flaw size of primary system piping, as well as between the postulated leak rates and the present leak detection capability. The licensee stated that the remaining required leak-detection methods will provide sufficient early leak indication and diverse leak-detection methods to support the LBB analysis.

As discussed above, the licensee has requested to limit the applicability of LCO 3.4.15 to mode 1 for the containment atmosphere particulate radiation monitor. The staff concluded that for mode 1 the TSs are consistent with the criteria set forth in RG 1.45. For modes 2 through 4, the remaining required detection methods (two required TS methods and other non-TS methods) provide sufficient diversity of leak detection capability. Therefore, the staff finds the licensee's proposed change acceptable.

### 3.4 Use of Grab Samples as an Alternate Compensatory Measure

The containment atmosphere particulate radioactivity channel and the CVUCDT will include an additional option to fulfill the required action of LCO 3.4.15. The proposed change would allow an option to analyze containment atmosphere radioactivity grab samples or perform an RCS mass balance calculation once per 24 hours in case of inoperability, whereas it previously required a mass balance calculation. The proposed TS action interval remains the same as the current TS. The licensee has stated that an RCS mass balance calculation requires a relatively lengthy period of steady state operation to provide accurate results. The ability to perform grab sampling during periods of power change coincident with entry to this action statement is desirable and provides an additional compensatory method of equal or superior capability to the currently required RCS mass balance. The staff finds that this change provides additional flexibility to compensate for possible equipment deficiencies. It is an acceptable change because the TS conditions continue to require at least two methods of detection (i.e sump level, airborne radioactivity or ventilation condensate) be restored within 30 days, if inoperable.

### 3.5 Requirement to Perform RCS Mass Balance

Duke has requested that a change be made to Required Action A.I of TS 3.4.15. A note is added to state that SR 3.4.13.1, (RCS water inventory calculation) is not required to be performed until 12 hours after establishment of steady state operation. TS Condition C for Catawba 1 and 2, is being changed to add the same note to Required Action C.1. For consistency at McGuire 1 and 2, this requires the addition of a new Condition C. These changes are consistent with the existing TS requirements and configure the TSs to be

consistent with the existing requirements of SR 3.4.13.1. Adding the new condition at McGuire 1 and 2, is a conservative choice that is also consistent with the licensing bases.

The use of this proposed note is consistent with NUREG-1431, "Standard Technical Specifications Westinghouse Plants," (STS) and the existing TS SR 3.4.13. The TS Bases states that this note allows exceeding the 24-hour completion time during non-steady state operation. This is because the RCS mass balance must be performed with the reactor at steady state operating conditions and near operating pressure to achieve accurate results.

The staff finds these changes acceptable because they are consistent with the standard TSs and existing Catawba 1 and 2, and McGuire 1 and 2, TS 3.4.13.

A minor addition to the TS is new Condition E added for Catawba 1 and 2, and McGuire 1 and 2, to specify the performance of an RCS mass balance when the newly added ICI sump level alarm is inoperable. The addition of a new surveillance to perform, as a compensatory measure for the loss of ICI sump, is a conservative addition and is consistent with the other TS 3.4.13 conditions.

One additional change to the TSs was proposed to provide consistency in the logic and LCO of the TSs. At both plants a new required action, C.2, is inserted to state "During Modes 2, 3, and 4, restore inoperable containment ventilation unit condensate drain tank level monitor to OPERABLE status," with a corresponding Completion Time of 30 days. Although it would be unlikely, this is required to assure that possible equipment deficiencies would not allow the plants to be operated under compensatory action requirements for an extended duration. This was added to the original amendment application following initial staff review. This is a correction to the intended actions of the TSs. It is an acceptable change which adds a logical conservative action to the TSs.

### 3.6 Summary

The staff has reviewed the licensee's submittal and supporting documentation and compared the submittal to regulatory criteria. Based on its review, the staff concludes that the RCS leak detection systems will continue to provide diverse methods of leak detection and satisfy the intent of RG 1.45. The staff also concludes that the RCS leakage detection system remains capable of detecting and measuring leakage with a sufficient degree of accuracy to support the application of LBB technology used for the McGuire 1 and 2, and Catawba 1 and 2, plants.

## 4.0 FINAL NO SIGNIFICANT HAZARDS CONSIDERATION

The Commission's regulations in 10 CFR 50.92(c), "Issuance of amendment," state that the Commission may make a final determination that a license amendment involves no significant hazards consideration if operation of the facility in accordance with the amendment would not:

- (1) Involve a significant increase in the probability or consequences of an accident previously evaluated; or
- (2) Create the possibility of a new or different kind of accident from any accident previously evaluated; or
- (3) Involve a significant reduction in a margin of safety.

The following analysis was provided by the licensee in its letter dated May 4, 2006:

1. Would implementation of the changes proposed in this LAR involve a significant increase in the probability or consequences of an accident previously evaluated?

No. The changes contained in this LAR (license amendment request) have been evaluated and determined to not increase the probability or consequences of an accident previously evaluated. The proposed changes do not make any hardware changes and do not alter the configuration of any plant structure, system, or component. The proposed LAR: 1) removes the containment atmosphere gaseous radioactivity monitor as an option for meeting the operability requirements of TS 3.4.15 and replaces it with the containment atmosphere particulate radioactivity monitor, 2) clarifies the applicability of the TS to the containment atmosphere particulate radioactivity monitor, 3) adds the incore instrument sump and its level instrumentation to the McGuire and Catawba licensing basis contained in the TS, the Bases, and the Updated Final Safety Analysis Reports, and 4) makes other low risk changes to TS 3.4.15. None of the containment Reactor Coolant System (RCS) leakage detection instrumentation systems are initiators of any accident; therefore, the probability of occurrence of an accident is not increased. The McGuire and Catawba licensing bases will continue to require diverse means of detecting reactor coolant system (RCS) leakage, thus ensuring that leakage due to cracks would continue to be identified prior to breakage and the plant would be shutdown accordingly. Therefore the consequences of an accident are not increased.

2. Would implementation of the changes proposed in this LAR create the possibility of a new or different kind of accident from any accident previously evaluated?

No. The changes proposed in this LAR do not involve the use or installation of any equipment that is less conservative than that already installed and in use. No new or different system interactions are created and no new processes are introduced. The proposed changes will not introduce any new failure mechanisms, malfunctions, or accident initiators not already considered in the design and licensing basis. The proposed changes do not affect any structure, system, or component associated with an accident initiator. Based on these considerations, the proposed changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Would implementation of the changes proposed in this LAR involve a significant reduction in a margin of safety?

No. The changes proposed in this LAR do not make any alteration to any RCS leakage detection components. The proposed changes only remove the containment atmosphere gaseous radioactivity monitors as an option for meeting the operability requirements for TS 3.4.15 and replace it with the more responsive containment atmosphere particulate radioactivity monitor. Since the level of radioactivity in the McGuire and Catawba reactor coolant has become much lower than what was assumed in the original licensing bases, the gaseous channel can no longer detect a small RCS leak consistent with the plants' leak-before-break (LBB) analyses. A conservative addition is being made to TS 3.4.15 in order to include controls for the incore instrument sump level instrumentation. The changes contained in the LAR are not risk significant since the RCS leakage detection instrumentation is not credited in the McGuire and Catawba probabilistic risk assessments. The proposed amendment continues to require diverse means of leakage detection equipment with the capability to promptly detect RCS leakage well within the margin of the LBB analyses. Based on this evaluation, the proposed changes do not involve a significant reduction in a margin of safety.

The NRC staff has reviewed the licensee's analysis and, based on this review, has concluded that the three standards of 10 CFR 50.92(c) are satisfied. Therefore, the NRC staff has made a final determination that the proposed amendment involves no significant hazards consideration.

## 5.0 STATE CONSULTATION

In accordance with the Commission's regulations, the North Carolina and South Carolina State officials were notified of the proposed issuance of the amendments. The State officials had no comments.

## 6.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to the installation or use of facility components located within the restricted area as defined in 10 CFR Part 20 and change surveillance requirements. The NRC staff has determined that the amendments involve no significant increase in the amounts and no significant change in the types of any effluents that may be released offsite and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding (71 FR 51644). The Commission has made herein a final finding that the amendment involves no significant hazards considerations. Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

## 7.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributors: R. Jervy  
C. Li

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