March 1, 2007

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

SUBJECT: MCGUIRE NUCLEAR STATION, UNITS 1 AND 2, ISSUANCE OF AMENDMENTS REGARDING STEAM GENERATOR TUBE INTEGRITY, TSTF-449, REV. 4 (TAC NOS. MD2036 AND MD2037)

Dear Mr. Peterson:

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 237 to Renewed Facility Operating License NPF-9 and Amendment No. 218 to Renewed Facility Operating License NPF-17 for the McGuire Nuclear Station, Units 1 and 2. The amendments consist of changes to the Technical Specifications (TSs) in response to your application dated April 11, 2006, supplemented by letter dated November 29, 2006.

The amendments revise the TSs related to steam generator tube integrity. The changes are consistent with the Nuclear Regulatory Commission's approved Technical Specification Task Force (TSTF) Standard Specification Change Traveler, TSTF-449, Revision 4, "Steam Generator Tube Integrity." TSTF-449 is part of the consolidated line-item improvement process. The organizational description change in TS 5.2.1, and minor editorial changes, which are solely administrative in nature will be addressed in a separate amendment.

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. 50-369 and 50-370

Enclosures:
1. Amendment No. 237 to NPF-9
2. Amendment No. 218 to NPF-17
3. Safety Evaluation

cc w/encls: See next page

March 1, 2007

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.

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Amendment No.: ML070320048 *SE Input provided by memo.

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DUKE POWER COMPANY LLC

DOCKET NO. 50-369

MCGUIRE NUCLEAR STATION, UNIT 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 237
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), dated April 11, 2006, as supplemented November 29, 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. 237, 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 120 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: March 1, 2007

DUKE POWER COMPANY LLC

DOCKET NO. 50-370

MCGUIRE NUCLEAR STATION, UNIT 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 218
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), dated April 11, 2006, as supplemented November 29, 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. 218, 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 120 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: March 1, 2007

ATTACHMENT TO LICENSE AMENDMENT NO. 237

RENEWED FACILITY OPERATING LICENSE NO. NPF-9

DOCKET NO. 50-369

AND

LICENSE AMENDMENT NO. 218

RENEWED FACILITY OPERATING LICENSE NO. NPF-17

DOCKET NO. 50-370

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.

Remove	Insert
License Pages	License Pages
NPF-9 page 3	NPF-9 page 3
NPF-17 page 3	NPF-17 page 3
TS Pages	TS Pages
Table of Contents, page ii	Table of Contents, page ii
1.1-3	1.1-3
3.4.13-1	3.4.13-1
3.4.13-2	3.4.13-2
---	3.4.18-1
---	3.4.18-2
5.5-6	5.5-6
5.5-7	5.5-7
5.5-8	5.5-8
5.5-9	5.5-9
5.5-10	5.5-10
5.5-11	5.5-11
5.5-12	5.5-12
5.5-13	5.5-13
5.5-14	5.5-14
5.6-5	5.6-5

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO

AMENDMENT NO. 237 TO RENEWED FACILITY OPERATING LICENSE NPF-9

AND

AMENDMENT NO. 218 TO RENEWED FACILITY OPERATING LICENSE NPF-17

DUKE POWER COMPANY LLC

MCGUIRE NUCLEAR STATION, UNITS 1 AND 2

DOCKET NOS. 50-369 AND 50-370

1.0 INTRODUCTION

By application dated April 11, 2006 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML061080500), as supplemented by letter dated November 29, 2006 (ADAMS Accession No. ML063460252), Duke Power Company, LLC (the licensee), requested changes to the Technical Specifications (TSs) for the McGuire Nuclear Station, Units 1 and 2 (McGuire 1/2). The supplement dated November 29, 2006, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the Nuclear Regulatory Commission (NRC) staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on December 5, 2006 (71 FR 70557).

The proposed changes would revise the existing steam generator (SG) tube surveillance program. The changes are modeled after TS Task Force (TSTF) Traveler TSTF-449, "Steam Generator Tube Integrity," Revision 4, and the model safety evaluation prepared by the NRC and published in the *Federal Register* on March 2, 2005 (70 FR 10298) under the consolidated line item improvement process. The scope of the application includes changes to the definition of leakage, changes to the primary-to-secondary leakage requirements, changes to the SG tube surveillance program (SG tube integrity), changes to the SG reporting requirements, and associated changes to the TS Bases.

2.0 REGULATORY EVALUATION

The background, description, and applicability of the proposed changes associated with the SG tube integrity issue and the applicable regulatory requirements were included in the NRC staff's model safety evaluation (SE) published in the *Federal Register* on March 2, 2005 (70 FR 10298). The "Notice of Availability of Model Application Concerning Technical Specification; Improvement To Modify Requirements Regarding Steam Generator Tube

Integrity; Using the Consolidated Line Item Improvement Process," was published in the *Federal Register* on May 6, 2005 (70 FR 24126), and made the model SE available for licensees to reference.

3.0 TECHNICAL EVALUATION

3.1 Overview

In its April 11, 2006, application, and November 29, 2006, supplement, the licensee proposed changes to the TSs that are modeled after Technical Specification Task Force (TSTF) Standard Technical Specification Change Traveler, TSTF-449, "Steam Generator Tube Integrity." There were minor differences between TSTF-449 and the licensee's application. These included differences in the facility licensing basis (than that discussed in TSTF-449) and differences in TS numbering. The differences are discussed in the following paragraphs.

With respect to the differences in the facility licensing basis, the differences did not invalidate the technical evaluation on TSTF-449; rather, they resulted in the licensee having to slightly deviate from some of the modifications discussed in TSTF-449. For example, in the accident analyses for McGuire 1/2, the licensee assumes that the primary-to-secondary leakage rate does not exceed 135 gallons per day (gpd) through any one SG and does not exceed 389 gpd through all SGs. The assumptions are more limiting than what is assumed in TSTF-449. As a result of these accident analyses assumptions, the licensee has different limiting conditions for operation and surveillance requirements for primary-to-secondary leakage than what is included in TSTF-449. In addition, there are differences in the licensee's Bases because of the accident analyses assumptions when compared to TSTF-449. An example is contained in the Bases Section for Reactor Coolant System Operational Leakage. In TSTF-449, the leakage rates are assumed to be measured at room temperature; however, for McGuire 1/2, the accident analyses assume the leakage rates are measured at 585-degrees Fahrenheit. The differences were minor in nature, they were consistent with the plant's licensing basis, and they were consistent with the intent of TSTF-449; therefore the NRC staff determined they were acceptable. The differences in the numbering of the TSs, were administrative in nature and did not affect the technical adequacy of the submittal. As a result, the NRC staff determined they were acceptable.

Furthermore, the licensee proposed, in part, to limit accident induced leakage to 0.27 gallons per minute (gpm) total. Since this proposal was more restrictive than that required by TSTF-449, which limited accident induced leakage, in part, to 1 gpm per SG, the NRC staff found it acceptable. The licensee also proposed to modify the note in surveillance requirement 3.4.13.1 to remove reference to Modes 3 and 4. Since this change is consistent with the standard TSs and the intent of TSTF-449, the NRC staff determined it was acceptable.

With respect to the discussion in the licensee's proposed Bases concerning the accident analyses for a SG tube rupture, the NRC staff identified a difference between the licensee's April 11, 2006, and November 29, 2006 submittals. Specifically, in the first paragraph on page B 3.4.18-2 of the April 11, 2006, submittal, the licensee indicated that the accident analysis for a SG tube rupture assumes main steam isolation valve closure and cooldown via the SG safety valves or blowdown through the SG power-operated relief valves. The corresponding text in the licensee's November 29, 2006, letter indicated that the accident analysis for a SG tube rupture assumed the contaminated secondary fluid is only briefly released to the atmosphere via safety

valves and the majority is discharged to the main condenser. This latter text is consistent with TSTF-449. During a phone call, the licensee indicated that they would modify the wording on page B 3.4.18-2 to make it consistent with the licensee's original submittal dated April 11, 2006, since the wording in that version is consistent with its design and licensing basis. The changes to the Bases pages will be incorporated in accordance with the TS Bases Control Program. The NRC staff notes that although the licensee has a different licensing basis than the one described in TSTF-449 with respect to this issue, the changes are acceptable since they are consistent with the plant's licensing basis and with the intent of TSTF-449.

The remainder of the application was consistent with, or more limiting than, TSTF-449 with one exception. In TSTF-449, the limit on normal operating primary-to-secondary leakage rate through any one SG was less than that assumed in the safety analysis. However, for McGuire 1/2, the normal operating primary-to-secondary leakage limits (135 gpd through any one SG and 389 gpd total through all SGs) are identical to the accident-induced primary-to-secondary leakage limits for design-basis accidents (DBAs) other than a SG tube rupture. Although the normal operating primary-to-secondary leakage limits and the accident-induced leakage limit have a different technical basis, it is not uncommon that the limits are the same. However, the normal operating primary-to-secondary leakage limit cannot be greater than the accident-induced leakage limit. The normal operating primary-to-secondary leakage limit is intended to limit the frequency of SG tube ruptures (i.e., it is an early indicator of a potential loss of the structural integrity of a SG tube); whereas the accident-induced leakage limit ensures that the dose consequences associated with this leakage are acceptable. Given this situation, the NRC staff evaluated the acceptability of this difference between TSTF-449 and the licensee's submittal. Since the leakage rate observed during operation may increase during a DBA, it may be necessary to ensure that the normal operational leak rate is kept below its limit to ensure the accident-induced leakage limit is not exceeded. An increase in leakage during a DBA can be a result of either (1) the higher loadings associated with a DBA causing the leak rate from flaws that leak during normal operation to leak at higher rates, or (2) the higher loadings associated with a DBA causing a flaw that was not leaking during normal operation to leak during the DBA.

To address this issue the licensee indicated that it recognizes the potential issue. The licensee indicated that procedures require a shutdown when primary-to-secondary leakage is 100 gpd and require a prompt shutdown when the primary-to-secondary leakage rate is 125 gpd. The procedural limits are intended to maintain the leak rate below the operational leakage limit (i.e., provide a margin between the normal operating and accident-induced leakage limit consistent with TSTF-449). The NRC staff notes that although there may be a margin between these limits, the NRC staff's approval of TSTF-449, and this amendment, was not intended to ensure that satisfying the operating leakage limit would result in the accident-induced leakage limit being met. Rather, the NRC staff reviewed the adequacy of the proposed TS criteria for operational and accident-induced leakage based on the technical basis associated with each limit. Namely, that the operating leakage limit is effective at limiting the frequency of tube ruptures and the accident-induced leakage limit is consistent with the plant's design and licensing basis. Since the TS criteria on operational leakage at McGuire 1/2 is consistent with TSTF-449 and the accident-induced leakage limit is consistent with the licensee's accident analysis, the NRC staff finds the licensee's proposed TS criteria on these values to be acceptable.

The NRC staff determined that the model SE is applicable to this review and finds the proposed changes acceptable.

Consistent with TSTF-449, the proposed TS changes include: (1) a revised definition of LEAKAGE, (2) a revised TS 3.4.13, "Reactor Coolant System (RCS) Operational Leakage," (3) a new TS 3.4.18, “Steam Generator (SG) Tube Integrity,” (4) a revised TS 5.5.9, “Steam Generator (SG) Tube Surveillance Program,” (5) a revised TS 5.6.8, "Steam Generator Tube Inspection Report," and (6) a revised Table of Contents page to reflect the proposed changes.

3.2 Summary

The proposed TS changes establish a programmatic, largely performance-based regulatory framework for ensuring SG tube integrity is maintained. The NRC staff finds that it addresses key shortcomings of the current framework by ensuring that SG programs are focused on accomplishing the overall objective of maintaining tube integrity. It incorporates performance criteria for evaluating tube integrity that the NRC staff finds consistent with the structural margins and the degree of leak tightness assumed in the current plant licensing basis. The NRC staff finds that maintaining these performance criteria provides reasonable assurance that the SGs can be operated safely without an increase in risk.

The revised TSs will contain limited specific details concerning how the SG Program should achieve the required objective of maintaining tube integrity; the intent being that the licensee will have the flexibility to determine the specific strategy for meeting this objective. However, the NRC staff finds that the revised TSs include sufficient regulatory constraints on the establishment and implementation of the SG Program such as to provide reasonable assurance that tube integrity will be maintained.

Failure to meet the performance criteria will be reportable pursuant to the requirements in Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Sections 50.72 and 50.73. The NRC reactor oversight process provides a process by which the NRC staff can verify that the licensee has identified any SG Program deficiencies that may have contributed to such an occurrence and that appropriate corrective actions have been implemented.

The NRC staff finds that the TS changes proposed by the licensee in its April 11, 2006, application and November 29, 2006, supplement conform to the requirements of 10 CFR 50.36 and establish a TS framework that will provide reasonable assurance that SG tube integrity is maintained without undue risk to public health and safety.

The licensee included in its application the revised TS Bases to be implemented with the TS change. The NRC staff finds that the TS Bases Control Program is the appropriate process for updating the affected TS Bases pages and therefore, has not included the affected Bases pages with this amendment.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the North Carolina State official was notified of the proposed issuance of the amendments. The State official had no comments.

5.0 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 70557) December 5, 2006. The amendment also relates to changes in recordkeeping, reporting, or administrative procedures or requirements. Accordingly, the amendments meet the eligibility criteria for categorical exclusions set forth in 10 CFR 51.22(c)(9) and (c)(10). 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.

6.0 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 Contributor: Trent Wertz

Date: March 1, 2007

cc:

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