October 17, 2005

Mr. James J. Sheppard
President and Chief Executive Officer
STP Nuclear Operating Company
South Texas Project Electric
Generating Station
P. O. Box 289
Wadsworth, TX 77483

SUBJECT: SOUTH TEXAS PROJECT, UNITS 1 AND 2 - ISSUANCE OF AMENDMENTS RE: REACTOR COOLANT SYSTEM LEAKAGE DETECTION (TAC NOS. MC7258 AND MC7259)

Dear Mr. Sheppard:

The Commission has issued the enclosed Amendment No. 174 to Facility Operating License No. NPF-76 and Amendment No. 162 to Facility Operating License No. NPF-80 for the South Texas Project, Units 1 and 2, respectively. The amendments consist of changes to the Technical Specifications (TSs) in response to your application dated June 2, 2005.

The amendments change TS 3.4.6.1, "Reactor Coolant System Leakage Detection Systems," to specifically require only one containment radioactivity monitor (particulate channel) to be operable in Modes 1, 2, 3, and 4. Additionally, corresponding changes to the Surveillance Requirement (SR) 4.4.6.1 and 4.4.6.2.1, "Reactor Coolant System Operational Leakage," were also made.

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

Sincerely,

/RA/

David H. Jaffe, Senior Project Manager, Section 1
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-498 and 50-499

Enclosures:
1. Amendment No. 174 to NPF-76
2. Amendment No. 162 to NPF-80
3. Safety Evaluation

cc w/encls: See next page

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STP NUCLEAR OPERATING COMPANY

DOCKET NO. 50-498

SOUTH TEXAS PROJECT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 174
License No. NPF-76

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by STP Nuclear Operating Company* acting on behalf of itself and for Texas Genco, LP, the City Public Service Board of San Antonio (CPS), AEP Texas Central Company, and the City of Austin, Texas (COA) (the licensees), dated June 2, 2005, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, as amended, 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;

   D. The issuance of this license 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.

---

*STP Nuclear Operating Company is authorized to act for Texas Genco, LP, the City Public Service Board of San Antonio, AEP Texas Central Company, and the City of Austin, Texas, and has exclusive responsibility and control over the physical construction, operation, and maintenance of the facility.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and Paragraph 2.C.(2) of Facility Operating License No. NPF-76 is hereby amended to read as follows:

   (2) Technical Specifications

   The Technical Specifications contained in Appendix A, as revised through Amendment No. 174, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. The STP Nuclear Operating Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. The license amendment is effective as of its date of issuance and shall be implemented within 90 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION
/RA/

David Terao, Chief, Section 1
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: October 17, 2005

STP NUCLEAR OPERATING COMPANY

DOCKET NO. 50-499

SOUTH TEXAS PROJECT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 162
License No. NPF-80

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by STP Nuclear Operating Company* acting on behalf of itself and for Texas Genco, LP, the City Public Service Board of San Antonio (CPS), AEP Texas Central Company, and the City of Austin, Texas (COA) (the licensees), dated June 2, 2005, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, as amended, 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;

   D. The issuance of this license 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.

---

*STP Nuclear Operating Company is authorized to act for Texas Genco, LP, the City Public Service Board of San Antonio, AEP Texas Central Company, and the City of Austin, Texas, and has exclusive responsibility and control over the physical construction, operation, and maintenance of the facility.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and Paragraph 2.C.(2) of Facility Operating License No. NPF-80 is hereby amended to read as follows:

   (2) Technical Specifications

   The Technical Specifications contained in Appendix A, as revised through Amendment No. 162, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. The STP Nuclear Operating Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. The license amendment is effective as of its date of issuance and shall be implemented within 90 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

David Terao, Chief, Section 1
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: October 17, 2005

ATTACHMENT TO LICENSE AMENDMENT NOS. 174 AND 162

FACILITY OPERATING LICENSE NOS. NPF-76 AND NPF-80

DOCKET NOS. 50-498 AND 50-499

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

REMOVE	INSERT
3/4 4-19	3/4 4-19
3/4 4-21	3/4 4-21

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NOS. 174 AND 162 TO

FACILITY OPERATING LICENSE NOS. NPF-76 AND NPF-80

STP NUCLEAR OPERATING COMPANY, ET AL.

SOUTH TEXAS PROJECT, UNITS 1 AND 2

DOCKET NOS. 50-498 AND 50-499

1.0 INTRODUCTION

By application to the U.S. Nuclear Regulatory Commission (NRC) dated June 2, 2005 (Agencywide Documents and Access Management System (ADAMS) Accession No. ML051610216), STP Nuclear Operating Company (the licensee) requested changes to the Technical Specifications (TSs) for South Texas Project (STP), Units 1 and 2.

The proposed changes would revise Technical Specification (TS) 3.4.6.1, "Reactor Coolant System Leakage Detection Systems," to specifically require only one containment radioactivity monitor (particulate channel) to be operable in Modes 1, 2, 3, and 4. Additionally, corresponding changes to the Surveillance Requirement (SR) 4.4.6.1 and 4.4.6.2.1, "Reactor Coolant System Operational Leakage," were also requested.

2.0 REGULATORY EVALUATION

The NRC requires licensees to use a means of detecting and, to the extent practical, identifying the location of any sources of reactor coolant system (RCS) leakage (Title 10 of the *Code of Federal Regulations*, Part 50, Appendix A, “General Design Criteria [(GDC)] for Nuclear Power Plants,” Criterion 30, “Quality of Reactor Coolant Pressure Boundary”). The NRC provided guidance on meeting GDC 30 in Regulatory Guide (RG) 1.45, “Reactor Coolant Pressure Boundary Leakage Detection Systems.” Some licensees committed to using RG 1.45 as the basis for meeting GDC 30.

RG 1.45 states that an acceptable means would provide for adequate sensitivity and response time of all leakage detection systems to detect a leakage rate of 1 gallon per minute (gpm) in less than 1 hour. Further, the acceptable means would employ at least three separate detection methods. Two of these methods are monitoring sump level and sump flow and monitoring airborne particulate radioactivity. The third method is either monitoring the condensate flow rate from air coolers or monitoring airborne gaseous radioactivity. The guide also states that a “realistic” primary radioactivity concentration should be assumed when analyzing the sensitivity of leak detection systems.

As indicated in NRC Information Notice (IN) 2005-24, “Nonconservatism in Leakage Detection Sensitivity,” dated August 3, 2005, during original plant licensing, the typical calculation for the

TS for gas channel monitor response used an RCS source term corresponding to an assumed 0.1 percent failed fuel. Because of improvements in fuel performance and RCS chemistry control, the actual RCS source term can be orders of magnitude smaller. Though desirable, a small source term can result in reduced leakage monitoring capabilities. Using a realistic RCS source term, a 1 gpm RCS leak would likely not be detected by a gas channel monitor for a much greater time than within 1 hour. The 0.1-percent failed fuel assumption introduces a nonconservatism into the TSs. Guidance on resolving such a nonconservatism is given in NRC Administrative Letter 98-10, "Dispositioning of Technical Specifications That Are Insufficient to Assure Plant Safety."

3.0 TECHNICAL EVALUATION

The Reactor Containment Building Atmosphere Monitor is described in Section 11.5.2.3.2 of the STP Updated Final Safety Analysis Report as follows:

> This monitor is provided to monitor Containment air for particulate, iodine, and noble gas activities. The monitor continuously samples from the Containment atmosphere, which is drawn outside the Containment in a closed system. The detectors and associated equipment are mounted on a single skid. The sample air passes through a moving (nominal 1 in./hr) filter tape at an appropriate rate depositing airborne particules [sic] on the paper, which is continuously monitored by a beta-sensitive scintillation detector. The detector assembly is in a completely enclosed, shielded housing. The detector is a hermetically sealed photomultiplier tube, thin-plastic scintillator combination. Four-pi lead shielding is provided to reduce ambient background radiation to a level that provides adequate detector sensitivity.
>
> The sample then passes through a closed system to a charcoal cartridge to collect iodine. The cartridge is monitored by a shielded gamma-sensitive scintillation detector.
>
> When the sample air leaves the charcoal cartridge, it is drawn through a closed system to a shielded stainless steel gas sampling chamber monitored by a beta-sensitive scintillation detector. The sampled air is finally returned to the Containment atmosphere.
>
> The particulate and noble gas channels are used as part of the Reactor Coolant Pressure Boundary (RCPB) leakage detection system. The sensitivity and response time of this part of the leakage detection system, which is used for monitoring unidentified leakage to the Containment, are sufficient to detect an increase in leakage rate of the equivalent of one gal/min within one hour. Elements of this monitor, including the indicator mounted in the RMS [radioactivity monitoring system] CR [control room] cabinet, are designed and qualified to remain functional following a Safe Shutdown Earthquake (SSE), in compliance with RG 1.45. Further information on the RCPB leakage detection system is presented in Section 5.2.5.

With regard to gaseous monitor, the June 2, 2005, application states that during the period since startup of STP to the present, the gaseous channel of the containment atmosphere radiation monitor has become less effective for RCS leakage detection due to improved fuel integrity and the resultant reduced RCS radioactivity levels. The gaseous channel was designed in accordance with the sensitivities specified in RG 1.45, (i.e., assuming 0.12 percent failed fuel) its alarm setpoint has been set as low as practicable, is fully functioning in

accordance with its design requirements, and is meeting the current TS SRs. However, due to the high normal background levels of activated gas inside containment, the gaseous channel is unable to promptly detect RCS leakage with reduced reactor coolant radioactivity levels. The licensee's experience is consistent with industry experience as reported in NRC IN 2005-24.

Under current requirements, TS 3.4.6.1a requires that one Containment Atmospheric Radioactivity Monitor be operable but this requirement can be fulfilled by the operability of either the gaseous or particulate channel. The licensee has proposed the elimination of the option to fulfil the operability requirement for the Containment Atmospheric Radioactivity Monitor via operability of the gaseous channel. While a change to the TS is not needed to fulfil this option, since operability of either the gaseous or particulate channels is sufficient, the proposed change does eliminate the use of a nonconservative monitoring option (the gaseous channel) to fulfil the requirements of TS 3.4.6.1a and is acceptable. Since the option of using the gaseous channel as a part of the leak detection system, as reflected in the TS, would be eliminated, the remaining surveillance and operability requirements in TS 3.4.6.1 and 3.4.6.2 can also be eliminated as they relate to RCS leakage detection.

It should be noted that the elimination of the TS requirements for the gaseous channel does not significantly decrease the licensee's RCS leakage detection capability. As stated in the June 2, 2005, application:

> Additional diverse means of leakage detection are available as part of the overall STPNOC leakage detection capability. For example, non-TS required Volume Control Tank (VCT) level is monitored in the control room with a level recorder. The level recorder is sensitive enough to record a one gal/min leak rate within one hour during steady state operations. RCS mass balance is performed in accordance with TS 3.4.6.1 with one inoperable RCS leakage detection monitor. The mass balance calculated from performing the surveillance can provide indication of a one gal/min leakrate change. Finally, additional non-TS required containment temperature and pressure instrumentation provide indication in the main control room.
>
> It should be noted that STPNOC intends to maintain the containment atmosphere gaseous radioactivity monitor functional and available in accordance with normal non-TS equipment practices.

Based upon the nonconservative nature of using the gaseous channel as an option for RCS leakage detection and the adequacy of the remaining means of RCS leakage detection, the NRC staff concludes that the proposed changes to the TS are acceptable.

4.0 STATE CONSULTATION

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

5.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. 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 published July 5, 2005 (70 FR 38722). 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.

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: D. Jaffe

Date: October 17, 2005

South Texas Project, Units 1 & 2

cc:

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