

September 11, 2001

Mr. William T. Cottle
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
REGARDING TECHNICAL SPECIFICATION DEFINITION CHANGE OF CORE
ALTERATION (TAC NOS. MB2124 AND MB2125)

Dear Mr. Cottle:

The Commission has issued the enclosed Amendment No. 131 to Facility Operating License No. NPF-76 and Amendment No. 120 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 May 24, 2001.

The amendments revise the TS definition for "core alterations" such that moving the control rods with the integrated head package would not be considered a core alteration.

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 J. Wrona, 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. 131 to NPF-76
2. Amendment No. 120 to NPF-80
3. Safety Evaluation

cc w/encls: See next page

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ACCESSION NO: ML012550284

* No legal objection with comments

** SE input dated 8/15/01, no significant changes made

OFFICE	PDIV-1/PM	PDIV-D/LA	RTSB	OGC/NLO	PDIV-1/SC
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DATE	08/27/01	08/24/01	8/15/01	09/06/01	09/06/01

South Texas, Units 1 & 2

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June 2001

STP NUCLEAR OPERATING COMPANY

DOCKET NO. 50-498

SOUTH TEXAS PROJECT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 131
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 Houston Lighting & Power Company (HL&P), the City Public Service Board of San Antonio (CPS), Central Power and Light Company (CPL), and the City of Austin, Texas (COA) (the licensees), dated May 24, 2001, 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 Houston Lighting & Power Company (HL&P), the City Public Service Board of San Antonio, Central Power and Light 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. 131 , and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. STPNOC 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 30 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Robert A. Gramm, 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: September 11, 2001

STP NUCLEAR OPERATING COMPANY

DOCKET NO. 50-499

SOUTH TEXAS PROJECT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 120
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 Houston Lighting & Power Company (HL&P), the City Public Service Board of San Antonio (CPS), Central Power and Light Company (CPL), and the City of Austin, Texas (COA) (the licensees), dated May 24, 2001, 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 Houston Lighting & Power Company (HL&P), the City Public Service Board of San Antonio, Central Power and Light 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. 120 , and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. STPNOC 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 30 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Robert A. Gramm, 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: September 11, 2001

ATTACHMENT TO LICENSE AMENDMENT NOS. 131 AND 120

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

DOCKET NOS. 50-498 AND 50-499

Replace the following page of the Appendix A Technical Specifications with the attached revised page. The revised page is identified by amendment number and contains marginal lines indicating the areas of change.

REMOVE

1-2

INSERT

1-2

DEFINITIONS

CONTAINMENT INTEGRITY

1.7 CONTAINMENT INTEGRITY shall exist when:

- a. All penetrations required to be closed during accident conditions are either:
 - 1) Capable of being closed by an OPERABLE containment automatic isolation valve system, or
 - 2) Closed by manual valves, blind flanges, or deactivated automatic valves secured in their closed positions, except as provided in Specification 3.6.3.
- b. All equipment hatches are closed and sealed,
- c. Each air lock is in compliance with the requirements of Specification 3.6.1.3,
- d. The containment leakage rates are within the limits of Specification 3.6.1.2, and
- e. The sealing mechanism associated with each penetration (e.g., welds, bellows, or O-rings) is OPERABLE.

CONTROLLED LEAKAGE

1.8 CONTROLLED LEAKAGE shall be that seal water flow supplied to the reactor coolant pump seals.

CORE ALTERATIONS

1.9 CORE ALTERATIONS shall be the movement of any fuel, sources, or reactivity control components [excluding rod cluster control assemblies (RCCAs) locked out in the integrated head package] within the reactor vessel with the vessel head removed and fuel in the vessel. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.

CORE OPERATING LIMITS REPORT

1.9a The CORE OPERATING LIMITS REPORT is the unit-specific document that provides core operating limits for the current operating reload cycle. These cycle-specific core operating limits shall be determined for each reload cycle in accordance with Specification 6.9.1.6. Plant operation within these core operating limits is addressed within the individual Specifications.

DIGITAL CHANNEL OPERATIONAL TEST

1.10 A DIGITAL CHANNEL OPERATIONAL TEST shall consist of injecting simulated process data where available or exercising the digital computer hardware using data base manipulation to verify OPERABILITY of alarm, interlock, and/or trip functions.

DOSE EQUIVALENT I-131

1.11 DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microCurie/gram) which alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in Table E-7 of NRC Regulatory Guide 1.109, Revision 1, October 1977.

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NOS. 131 AND 120 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 dated May 24, 2001, the South Texas Project (STP) Nuclear Operation Company (STPNOC or the licensee) requested amendments to revise the South Texas Project, Units 1 and 2 Technical Specifications (TSs). The proposed amendments would revise the TS definition for CORE ALTERATIONS so that moving the control rods with the STP integrated head package would not be considered a core alteration. This change would account for a plant-specific design feature at STP.

2.0 BACKGROUND

2.1 Proposed TS Changes

The approval of this license amendment request (LAR) would result in the licensee being able to move the rod cluster control assemblies (RCCAs) while completely withdrawn and locked into the integrated reactor head package with such movement not being considered a core alteration. Because the STP control rods are withdrawn into the upper internals (and the internals are part of the integrated head package), STP currently must consider movement of the package as a core alteration and, accordingly, must apply the associated restrictive actions and conditions required by various TS.

The LAR would not change, in any way, the design or function of any safety or nonsafety-related systems or components previously reviewed by the NRC staff and found to be acceptable. The LAR proposes to revise the definition of CORE ALTERATIONS so that the movement of the integrated head package with the RCCAs completely withdrawn and locked into the package would not be considered a core alteration. STP has currently adopted the definition found in NUREG-1431, Revision 2, "Standard Technical Specifications, Westinghouse Plants," dated April 2001, for the term "CORE ALTERATIONS." The proposed change would be consistent with the applicable definition found in NUREG-1432, Revision 2, "Standard Technical Specifications, Combustion Engineering Plants," dated April 2001.

The current DEFINITION of CORE ALTERATIONS in the STP TS (from NUREG-1431) states:

CORE ALTERATIONS shall be the movement of any fuel, sources, or reactivity control components within the reactor vessel with the vessel head removed and

fuel in the vessel. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.

The proposed DEFINITION of CORE ALTERATIONS for STP would state:

1.9 CORE ALTERATIONS shall be the movement of any fuel, sources, or reactivity control components [excluding rod cluster control assemblies (RCCAs) locked out in the integrated head package] within the reactor vessel with the vessel head removed and fuel in the vessel. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.

2.2 NRC Staff Evaluation Criteria and Scope of Review

In deciding the acceptability of this LAR, the NRC staff used the following requirements, guidance, and information:

- (1) The definition of CORE ALTERATIONS in the STP TS,
- (2) The definition of CORE ALTERATIONS in NUREG-1431, Revision 2, "Standard Technical Specifications, Westinghouse Plants," dated April 2001,
- (3) The definition of CORE ALTERATIONS in NUREG-1432, Revision 2, "Standard Technical Specifications, Combustion Engineering Plants," dated April 2001,
- (4) The description of STP's integrated head package as provided in the LAR,
- (5) The description of STP's rapid refueling process as provided in Section 9.1.4 of STP's Updated Final Safety Analysis Report (UFSAR),
- (6) General Design Criterion 26 (reactivity control) and General Design Criterion 28 (reactivity limits); and
- (7) Precedent as contained in the recent approval of a license amendment request for a change in the TS definition of CORE ALTERATIONS for Arkansas Nuclear One, Unit 2, dated September 7, 2000.

3.0 EVALUATION

Section 9.1.4 of the STP UFSAR describes the STP rapid refueling process. In this section of the UFSAR, STPNOC describes the process in which the control rods are withdrawn into the integrated head package and then moved with the integrated head package as a whole assembly. The rapid refueling process described in this section of the UFSAR is the refueling process normally used by STPNOC. In this process, the refueling water and the reactor coolant contain approximately 2800 ppm boron, which is sufficient to keep the core approximately 5 percent $\Delta k/k$ subcritical during the refueling operations with all control rods (RCCAs) removed and the core refueled to provide sufficient excess reactivity for operation to the next refueling outage.

After shutdown for a refueling outage and the Reactor Coolant System (RCS) has been cooled, the RCCAs are withdrawn to their full-out position, and each control rod's holdout device is

activated to ensure that the rod is held in its withdrawn position inside its upper internals guide tube and reactor head pressure housing.

In the disassembly process, after the reactor head has been detensioned and the studs removed from the vessel flange, the reactor vessel is flooded to 12 inches below the top of the head flange. The upper head package (i.e., head, missile, cable bridge, upper internals, control rods, and rod drives) is lifted by the polar crane until the closure head guide pins are clear. Water from the refueling water storage tank is pumped into the RCS, causing the water to overflow into the refueling cavity. The vessel head is lifted in conjunction with the water level in the refueling cavity and the upper package is moved to storage at the end of the refueling cavity opposite the refueling canal.

In considering possible process improvements for refueling outages, STPNOC determined that the current TS definition of CORE ALTERATIONS was not consistent with the STP specific design. Currently, movement of the integrated head package with the RCCAs withdrawn into the package is considered a core alteration as long as that portion of the assembly containing the RCCAs is in the reactor vessel. STPNOC recognized that its rapid refueling design using the integrated head package with the control rods fully withdrawn and a high boron concentration in the vessel placed the control rods in a position where they had no effect on reactivity. In this configuration, movement of the RCCAs cannot significantly affect reactivity, which is the parameter addressed by the definition of CORE ALTERATIONS in the TS.

The proposed change would enable STP to perform the same activities other Westinghouse plants perform while the reactor head and upper internals are being removed. Because the STP control rods are withdrawn into the upper internals (and the internals are part of the integrated head package), STP has had to consider moving the package to be a core alteration and apply the associated restrictive actions and conditions required by various TSs. Other Westinghouse plants that have the current definition of CORE ALTERATIONS do not have to impose the restrictions because neither the head nor the upper internals meet the definition requirements.

General Design Criterion (GDC) 26 establishes requirements for reactivity control system redundancy and capability. STP meets the GDC 26 requirements for redundancy and capability by using control rods (RCCAs) and boration. The boration system is the system credited for meeting the GDC 26 requirement to hold the reactor subcritical under cold conditions. Because there is no credit for the RCCAs holding the reactor core subcritical during refueling, there will be no impact on compliance with GDC 26 by the proposed change to the definition of CORE ALTERATIONS.

General Design Criterion 28 establishes requirements for reactivity limits and in particular rates of reactivity increase. Because the RCCAs have no effect on core reactivity when they are withdrawn into the integrated head package, their removal with the head package has no significant reactivity increase and there is no impact on compliance with GDC 28.

As mentioned earlier, STP has adopted the current definition of CORE ALTERATIONS from NUREG-1431, Westinghouse Standard Technical Specifications and it was noted that this definition does not allow for the STP specific design features. NUREG-1432, the Combustion Engineering (CE) Standard Technical Specifications has incorporated a definition that is more representative of the definition needed to reflect STP's design. The STP design is different from the CE design in that the STP RCCAs are withdrawn into an integrated head package which is moved as a single assembly while the CE design removes the reactor head and the

control element assemblies in separate evolutions. However, the STP and CE designs are similar in that the control rods are in a configuration where they are above the active core and do not have any significant reactivity effects and their movement in this configuration need not be considered a core alteration. Analysis of the proposed change demonstrates that there is no change in reactivity management because the RCCAs do not present a reactivity consideration when they are withdrawn into the integrated head package.

The top of the active fuel in the STP reactor core corresponds to 255 steps on the RCCA, or 168.0 inches above the bottom of the active fuel. The top of rod travel for the RCCA during operation is 259 steps (i.e., 4 steps above the top of the active fuel) and the position of the RCCAs when they are withdrawn into the integrated head package is typically 270 steps. Therefore, when the RCCAs are fully withdrawn into the integrated head package they are typically 15 steps, or about 9 inches, above the top of the active fuel.

During refueling, including movement of the head package, the RCS boron concentration is maintained above 2800 ppm, per STP TS. This ensures that the Keff of the unrodded core, both the spent discharge core and the fresh reloaded core, remains below 0.95. The presence of the RCCAs in the head package is not credited in any safety analyses.

Based on the evaluation above, the NRC staff concludes that revising the definition of CORE ALTERATIONS will have no adverse effect on the existing requirements for managing reactivity related evolutions during refueling. The existing TS that currently have conditions or actions that impose restrictions on core alterations will not be adversely affected by the proposed change since the movement of RCCAs withdrawn into the integrated head package has no potential to have an adverse reactivity effect.

The NRC staff finds that the proposed change to the definition of CORE ALTERATIONS will not introduce a significant change in reactivity management during shutdown operations. The NRC staff, therefore, concludes that the proposed TS change is acceptable. Also, the NRC staff notes that the proposed change is consistent with the previously approved amendment for Arkansas Nuclear One, Unit 2, dated September 7, 2000. In addition, the NRC staff notes that this change is consistent with NUREG-1432, Revision 2, "Standard Technical Specifications, Combustion Engineering Plants," dated April 2001.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Texas 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 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 (66 FR 36345, dated July 11, 2001). 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: J. Foster

Date: September 11, 2001