

November 2 1994

Mr. William T. Cottle
Group Vice-President, Nuclear
Houston Lighting & Power Company
South Texas Project Electric
Generating Station
P. O. Box 289
Wadsworth, Texas 77483

SUBJECT: SOUTH TEXAS PROJECT, UNITS 1 AND 2 - AMENDMENT NOS. 66
AND 55 TO FACILITY OPERATING LICENSE NOS. NPF-76 AND NPF-80
(TAC NOS. M89432 AND M89433)

Dear Mr. Cottle:

The Commission has issued the enclosed Amendment Nos. 66 and 55 to Facility Operating License Nos. NPF-76 and NPF-80 for the South Texas Project, Units 1 and 2 (STP). The amendments consist of changes to the Technical Specifications (TS) in response to your application dated April 29, 1994, as supplemented by letter dated September 8, 1994.

The amendments permit revision of the maximum allowable power range neutron flux high setpoint when one or more main steam safety valves are inoperable. In addition, the new algorithm used to calculate the revised setpoint values is incorporated into the Bases for the TSs.

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

Sincerely,

ORIGINAL SIGNED BY:

Thomas W. Alexion, Project Manager
Project Directorate IV-1
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

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PDR ADDCK 05000498
P PDR

Docket Nos. 50-498
and 50-499

- Enclosures: 1. Amendment No. 66 to NPF-76
2. Amendment No. 55 to NPF-80
3. Safety Evaluation

cc w/encls: See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

November 22, 1994

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Group Vice-President, Nuclear
Houston Lighting & Power Company
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A copy of our related Safety Evaluation is enclosed. The Notice of Issuance will be included in the Commission's next biweekly Federal Register notice.

Sincerely,

A handwritten signature in cursive script that reads "Thomas W. Alexion".

Thomas W. Alexion, Project Manager
Project Directorate IV-1
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Docket Nos. 50-498
and 50-499

Enclosures: 1. Amendment No. 66 to NPF-76
2. Amendment No. 55 to NPF-80
3. Safety Evaluation

cc w/encls: See next page

Mr. William T. Cottle

- 2 -

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

HOUSTON LIGHTING & POWER COMPANY
CITY PUBLIC SERVICE BOARD OF SAN ANTONIO
CENTRAL POWER AND LIGHT COMPANY
CITY OF AUSTIN, TEXAS
DOCKET NO. 50-498
SOUTH TEXAS PROJECT, UNIT 1
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 66
License No. NPF-76

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Houston Lighting & Power Company* (HL&P) acting on behalf of itself and for the City Public Service Board of San Antonio (CPS), Central Power and Light Company (CPL), and City of Austin, Texas (COA) (the licensees), dated April 29, 1994, as supplemented by letter dated September 8, 1994, 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.

*Houston Lighting & Power Company is authorized to act for the City Public Service Board of San Antonio, Central Power and Light Company and City of Austin, Texas and has exclusive responsibility and control over the physical construction, operation and maintenance of the facility.

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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. 66, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. The licensee 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, to be implemented within 30 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Thomas W. Alexion, Project Manager
Project Directorate IV-1
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: **November 22, 1994**



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

HOUSTON LIGHTING & POWER COMPANY
CITY PUBLIC SERVICE BOARD OF SAN ANTONIO
CENTRAL POWER AND LIGHT COMPANY
CITY OF AUSTIN, TEXAS
DOCKET NO. 50-499
SOUTH TEXAS PROJECT, UNIT 2
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 55
License No. NPF-80

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Houston Lighting & Power Company* (HL&P) acting on behalf of itself and for the City Public Service Board of San Antonio (CPS), Central Power and Light Company (CPL), and City of Austin, Texas (COA) (the licensees), dated April 29, 1994, as supplemented by letter dated September 8, 1994, 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.

*Houston Lighting & Power Company is authorized to act for the City Public Service Board of San Antonio, Central Power and Light Company and 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. 55, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. The licensee 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, to be implemented within 30 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Thomas W. Alexion, Project Manager
Project Directorate IV-1
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: **November 22, 1994**

ATTACHMENT TO LICENSE AMENDMENT NOS. 66 AND 55
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 pages. The revised pages are identified by Amendment number and contain marginal lines indicating the areas of change. The corresponding overleaf pages are also provided to maintain document completeness.

REMOVE

3/4 7-2
B 3/4 7-1

INSERT

3/4 7-2
B 3/4 7-1

3/4.7 PLANT SYSTEMS

3/4.7.1 TURBINE CYCLE

SAFETY VALVES

LIMITING CONDITION FOR OPERATION

3.7.1.1 All main steam line Code safety valves associated with each steam generator shall be OPERABLE with lift settings as specified in Table 3.7-2.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

- a. With four reactor coolant loops and associated steam generators in operation and with one or more main steam line Code safety valves inoperable, operation in MODES 1, 2, and 3 may proceed provided that within 24 hours, either the inoperable valve is restored to OPERABLE status or the Power Range Neutron Flux High Trip Setpoint is reduced per Table 3.7-1; otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- b. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.1.1 There are no additional requirements other than those required by Specification 4.0.5

TABLE 3.7-1

MAXIMUM ALLOWABLE POWER RANGE NEUTRON FLUX HIGH SETPOINT WITH
INOPERABLE STEAM LINE SAFETY VALVES DURING 4 LOOP OPERATION

<u>MAXIMUM NUMBER OF INOPERABLE SAFETY VALVES ON ANY OPERATING STEAM GENERATOR</u>	<u>MAXIMUM ALLOWABLE POWER RANGE NEUTRON FLUX HIGH SETPOINT (PERCENT OF RATED THERMAL POWER)</u>
1	63
2	45
3	27

3/4.7 PLANT SYSTEMS

BASES

3/4.7.1 TURBINE CYCLE

3/4.7.1.1 SAFETY VALVES

The OPERABILITY of the main steam line Code safety valves ensures that the Secondary System pressure will be limited to within 110% (1413.5 psig) of its design pressure of 1285 psig during the most severe anticipated system operational transient. The maximum relieving capacity is associated with a Turbine trip from 100% RATED THERMAL POWER coincident with an assumed loss of condenser heat sink (i.e., no steam bypass to the condenser).

The specified valve lift settings and relieving capacities are in accordance with the requirements of Section III of the ASME Boiler and Pressure Code, 1971 Edition. The total relieving capacity for all valves on all of the steam lines is 20.65×10^6 lbs/h which is 122% of the total secondary steam flow of 16.94×10^6 lbs/h at 100% RATED THERMAL POWER. A minimum of two OPERABLE safety valves per steam generator ensures that sufficient relieving capacity is available for the allowable THERMAL POWER restriction in Table 3.7-1.

STARTUP and/or POWER OPERATION is allowable with safety valves inoperable within the limitations of the ACTION requirements on the basis of the reduction in Secondary Coolant System steam flow and THERMAL POWER required by the reduced Reactor trip settings of the Power Range Neutron Flux channels. The Reactor Trip Setpoint reductions are derived on the following bases:

$$Hi\phi = \frac{(100)}{Q} \frac{(w_s h_{fg} N)}{K}$$

Where:

- Hi ϕ = Safety analysis power range high neutron flux setpoint, percent
- Q = Nominal NSSS power rating of the plant (including reactor coolant pump heat), MWt
- K = Conversion Factor, 947.82 (BTU/sec)/MWt
- w_s = Minimum total steam flow rate capability of the operable MSSVs on any one steam generator at the highest MSSV opening pressure, including tolerance and accumulation, as appropriate, in lbm/sec. For example, if the maximum number of inoperable MSSVs on any one steam generator is one, then w_s should be a summation of the capacity of the operable MSSVs at the highest operable MSSV operating pressure, excluding the highest capacity MSSV. If the maximum number of inoperable MSSVs per steam generator is three, then w_s should be a summation of the capacity of the operable MSSVs at the highest operable MSSV operating pressure, excluding the three highest capacity MSSVs.
- h_{fg} = Heat of vaporization for steam at the highest MSSV operating pressure including allowances for tolerance, drift, and accumulation, as appropriate, Btu/lbm
- N = Number of loops in the plant.

The calculated values are lowered an additional 9% full power to account for instrument and channel uncertainties.

PLANT SYSTEMS

BASES

3/4.7.1.2 AUXILIARY FEEDWATER SYSTEM

The OPERABILITY of the Auxiliary Feedwater System ensures that the Reactor Coolant System can be cooled down to less than 350°F from normal operating conditions in the event of a total loss-of-offsite power.

Each auxiliary feedwater pump is capable of delivering a total feedwater flow of 500 gpm at a pressure of 1363 psig to the entrance of the steam generators. This capacity is sufficient to ensure that adequate feedwater flow is available to remove decay heat and reduce the Reactor Coolant System temperature to less than 350°F when the Residual Heat Removal System may be placed into operation. The AFW pumps are tested using the test line back to the AFST and the AFW isolation valves closed to prevent injection of cold water into the steam generators. The STPEGS isolation valves are active valves required to open on an AFW actuation signal. Specification 4.7.1.2.1 requires these valves to be verified in the correct position.

3/4.7.1.3 AUXILIARY FEEDWATER STORAGE TANK (AFST)

The OPERABILITY of the auxiliary feedwater storage tank with the minimum water volume ensures that sufficient water is available to maintain the RCS at HOT STANDBY conditions for 4 hours with steam discharge to the atmosphere concurrent with total loss-of-offsite power, main feedwater line break and failure of the AFW flow control valve followed by a cooldown to 350°F at 25°F per hour. The contained water volume limit includes an allowance for water not usable because of tank discharge line location or other physical characteristics.

3/4.7.1.4 SPECIFIC ACTIVITY

The limitations on Secondary Coolant System specific activity ensure that the resultant offsite radiation dose will be limited to a small fraction of 10 CFR Part 100 dose guideline values in the event of a steam line rupture. This dose also includes the effects of a coincident 1 gpm primary-to-secondary tube leak in the steam generator of the affected steam line. These values are consistent with the assumptions used in the safety analyses.

3/4.7.1.5 MAIN STEAM LINE ISOLATION VALVES

The OPERABILITY of the main steam line isolation valves ensures that no more than one steam generator will blow down in the event of a steam line rupture. This restriction is required to: (1) minimize the positive reactivity effects of the Reactor Coolant System cooldown associated with the blowdown, and (2) limit the pressure rise within containment in the event the steam line rupture occurs within containment. The OPERABILITY of the main steam isolation valves within the closure times of the Surveillance Requirements are consistent with the assumptions used in the safety analyses.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NOS. 66 AND 55 TO

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

HOUSTON LIGHTING & POWER COMPANY

CITY PUBLIC SERVICE BOARD OF SAN ANTONIO

CENTRAL POWER AND LIGHT COMPANY

CITY OF AUSTIN, TEXAS

DOCKET NOS. 50-498 AND 50-499

SOUTH TEXAS PROJECT, UNITS 1 AND 2

1.0 INTRODUCTION

By application dated April 29, 1994, as supplemented by letter dated September 8, 1994, Houston Lighting & Power Company, et.al., (the licensee) requested changes to the Technical Specifications (TSs) (Appendix A to Facility Operating License Nos. NPF-76 and NPF-80) for the South Texas Project, Units 1 and 2 (STP). The proposed changes would revise TS Table 3.7-1 and associated Bases by changing the maximum allowable power range neutron flux high setpoint when one or more main steam safety valves (MSSVs) are inoperable.

The September 8, 1994, supplement provided a summary of the calculation used as a basis for the proposed amendments. The summary calculation does not change the initial proposed no significant hazards consideration determination.

2.0 BACKGROUND

Westinghouse has determined that the maximum allowable power range neutron flux high setpoints given in TS Table 3.7-1 may not be low enough to prevent a secondary side overpressurization during a loss of load/turbine trip. In Nuclear Safety Advisory Letter (NSAL) 94-001 dated January 20, 1994, Westinghouse provided the licensee with an algorithm to determine the revised neutron flux high setpoints. The licensee requested that the Bases for TS 3/4.7.1.1 be changed to reflect the new algorithm and Table 3.7-1 be revised to reflect the new setpoint values. The setpoint values would be lowered from 87 percent, 65 percent, and 43 percent for 1, 2 or 3 inoperable MSSVs on any operable steam generator, respectively, to 63 percent, 45 percent, and 27 percent.

3.0 DISCUSSION

The safety function of the MSSVs is to protect the steam generators and piping upstream of the main steam isolation valves from overpressure. Bases Section 3/4.7.1.1 and TS 3.7.1.1 require the operability of the MSSVs to ensure that the secondary system pressure will not exceed 110 percent (1413.5 psig) of its design pressure (1285 psig) during the most severe anticipated system operational transient. The MSSVs are designed to relieve at least full power nominal steam flow.

TS 3.7.1.1 allows for plant operation with a reduced number of operable MSSVs at a reduced power level. Should one or more MSSVs become inoperable, the power range neutron flux high setpoints will be reduced to the appropriate values to preclude a secondary side overpressurization condition. TS 3.7.1.1 was previously based on the assumption that the maximum allowable initial power level is a linear function of the available MSSVs relief capacity.

In NSAL-94-001, Westinghouse determined that the maximum allowable initial power level is not a linear function of available MSSV relief capacity. Therefore, operation with a reduced number of operable MSSVs at previously existing reduced power levels may not preclude a secondary side overpressurization, as explained below. During loss of main feedwater, a reactor trip is necessary to prevent a secondary side overpressurization. At high initial power levels, a reactor trip is actuated early in the transient due to high pressurizer pressure or overtemperature delta T. The reactor trip terminates the transient and MSSVs maintain steam pressure below 110 percent of the design value. At low initial power levels, a reactor trip may not be actuated early in the transient. An overtemperature delta T trip is not generated since the core thermal margins are increased at lower power levels. A high pressurizer pressure trip is not generated if the primary pressure control systems function normally. This results in a longer time during which primary heat is transferred to the secondary side. The reactor eventually trips on low steam generator water level, but this may not occur before steam pressure exceeds 110 percent of the design value if one or more MSSVs are inoperable in accordance with the previously existing TS.

4.0 EVALUATION

The licensee calculated the new neutron flux high setpoints using the Westinghouse revised algorithm as follows. For each case of one, two or three inoperable MSSVs on any operating steam generator, the minimum heat removal capability of the remaining operable MSSVs is calculated (this is done by summing the capacity of the operable MSSVs at the highest operable MSSV operating pressure, excluding the highest capacity MSSV(s)). This heat removal capability would be then multiplied by number of loops in the plant to obtain the total heat removing capability from the secondary system using operable MSSVs. The total heat removing capability from the secondary system is then compared to (i.e., divided by) the total heat input to the secondary system (from the primary system, using the nominal plant NSSS power rating) to obtain the new neutron flux high values. With the new values, the heat input to the secondary system should not be greater than the heat removal capability

of the secondary system, for each case of one, two or three inoperable MSSVs. To provide additional assurance, the licensee then obtained the setpoints by lowering the values by 9 percent to compensate for instrument and channel uncertainties.

Based on the above, and the summary calculation provided by letter dated September 8, 1994, the staff finds that the revised algorithm ensures that the maximum power level allowed for operation with inoperable MSSVs is below the heat removing capability of the operable MSSVs. This ensures that the secondary system pressure will not exceed 110 percent of its design value.

In addition, the new setpoints are more conservative than the previous setpoints. Therefore, the staff finds that the proposed changes to TS Table 3.7-1 and Bases 3/4.7.1.1 are acceptable.

5.0 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.

6.0 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 (59 FR 29628). 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: A. Bryant
T. Alexion

Date: November 22, 1994