July 12, 1994

Docket Nos. 50-498
and 50-499

DISTRIBUTION:

Docket File	GHill (4)
NRC PDR	OGC
Local PDR	CGrimes
PDIV-1 Reading	ACRS (10)
JWRoe	OC/LFMB
EAdensam	DHagan
LKokajko (2)	OPA
EPeyton	WBeckner
WJohnson, RIV	TCollins, RSB

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

Dear Mr. Cottle:

SUBJECT: SOUTH TEXAS PROJECT, UNITS 1 AND 2 - AMENDMENT NOS. 62 AND 51 TO FACILITY OPERATING LICENSE NOS. NPF-76 AND NPF-80 (TAC NOS. M89079 and M89080)

The Commission has issued the enclosed Amendment Nos. 62 and 51 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 March 21, 1994.

The amendments revise Technical Specifications 3.1.2.3 "Reactivity Control Systems Charging Pumps - Shutdown" and 3.1.2.1 "Boration Systems Flow Paths - Shutdown." The amendment allows both centrifugal charging pumps to be simultaneously energized during shutdown conditions for pump switching purposes provided that the charging and boration flowpaths are isolated from the reactor coolant system.

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 T. Alexion for

Lawrence E. Kokajko, Senior Project Manager
Project Directorate IV-1
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 62 to NPF-76
2. Amendment No. 51 to NPF-80
3. Safety Evaluation

cc w/enclosures:
See next page

OFFICE	PDIV-2/LA	PDIV-2/PE	PDIV-2/PM	RSB	OGC no legal objection	PDIV-1 WDB
NAME	EPeyton	DSkay	LKokajko	~~RJones~~ TCollins		WBeckner
DATE	6/3/94	6/3/94	for 6/7/94	6/9/94	6/16/94	7/11/94

cc w/enclosures:
Mr. David P. Loveless
Senior Resident Inspector
U.S. Nuclear Regulatory Commission
P. O. Box 910
Bay City, Texas 77414

Mr. J. C. Lanier/M. B. Lee
City of Austin
Electric Utility Department
721 Barton Springs Road
Austin, Texas 78704

Mr. K. J. Fiedler
Mr. M. T. Hardt
Central Public Service Board
P. O. Box 1771
San Antonio, Texas 78296

Mr. C. A. Johnson
Central Power and Light Company
P. O. Box 289
Mail Code: N5001
Wadsworth, Texas 77483

INPO
Records Center
700 Galleria Parkway
Atlanta, Georgia 30339-3064

Regional Administrator, Region IV
U.S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76011

Mr. Joseph M. Hendrie
50 Bellport Lane
Bellport, New York 11713

Judge, Matagorda County
Matagorda County Courthouse
1700 Seventh Street
Bay City, Texas 77414

Mr. James J. Sheppard
General Manager, Nuclear Licensing
Houston Lighting and Power Company
P. O. Box 289
Wadsworth, Texas 77483

Jack R. Newman, Esq.
Newman & Holtzinger, P.C.
1615 L Street, N.W.
Washington, D.C. 20036

Licensing Representative
Houston Lighting and Power Company
Suite 610
Three Metro Center
Bethesda, Maryland 20814

Bureau of Radiation Control
State of Texas
1101 West 49th Street
Austin, Texas 78756

Rufus S. Scott
Associate General Counsel
Houston Lighting and Power Company
P. O. Box 61867
Houston, Texas 77208

Joseph R. Egan, Esq.
Egan & Associates, P.C.
2300 N Street, N.W.
Washington, D.C. 20037

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. 62
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 March 21, 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-76 is hereby amended to read as follows:

   2. <u>Technical Specifications</u>

      The Technical Specifications contained in Appendix A, as revised through Amendment No. 62, 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 31 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

William D. Beckner

William D. Beckner, Director
Project Directorate IV-1
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
  Specifications

Date of Issuance: July 12, 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. 51
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 March 21, 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. 51, 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 31 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

William D. Beckner

William D. Beckner, Director
Project Directorate IV-1
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: July 12, 1994

ATTACHMENT TO LICENSE AMENDMENT NOS. 62 AND 51

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	INSERT
3/4 1-9	3/4 1-9
3/4 1-11	3/4 1-11
B 3/4 1-3	B 3/4 1-3
B 3/4 1-4	B 3/4 1-4
B 3/4 4-14	B 3/4 4-14
--	B 3/4 4-14a

3/4.1.2 BORATION SYSTEMS

FLOW PATHS - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.1.2.1 As a minimum, one of the following boron injection flow paths shall be OPERABLE and capable of being powered from an OPERABLE emergency power source:

a. A flow path from the Boric Acid Storage System via either a boric acid transfer pump or a gravity feed connection, and a charging pump to the Reactor Coolant System if the Boric Acid Storage System is OPERABLE as given in Specification 3.1.2.5a. for MODES 5 and 6 or as given in Specification 3.1.2.6a. for MODE 4; or

b. The flow path from the refueling water storage tank via a charging pump to the Reactor Coolant System if the refueling water storage tank is OPERABLE as given in Specification 3.1.2.5b. for MODES 5 and 6 or as given in Specification 3.1.2.6b. for MODE 4.

APPLICABILITY: MODES 4*, 5*, and 6*.

ACTION:

With none of the above flow paths OPERABLE or capable of being powered from an OPERABLE emergency power source, suspend all operations involving CORE ALTERATIONS or positive reactivity changes.

SURVEILLANCE REQUIREMENTS

4.1.2.1 At least one of the above required flow paths shall be demonstrated OPERABLE:

a. At least once per 7 days by verifying that the temperature of the heat traced portion of the flow path is greater than or equal to 65°F when a flow path from the boric acid tanks is used, and

b. At least once per 31 days by verifying that each valve (manual, power-operated, or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position.

*The requirements of this specification are not applicable during charging pump testing or switching pursuant to Specification 4.1.2.3.2.

FLOW PATHS - OPERATING

LIMITING CONDITION FOR OPERATION

3.1.2.2 At least two of the following three boron injection flow paths shall be OPERABLE:

a. The flow path from the Boric Acid Storage System via either a boric acid transfer pump or a gravity feed connection, and a charging pump to the Reactor Coolant System (RCS), and

b. Two flow paths from the refueling water storage tank via charging pumps to the RCS.

APPLICABILITY: MODES 1, 2, and 3.*

ACTION:

With only one of the above required boron injection flow paths to the RCS OPERABLE, restore at least two boron injection flow paths to the RCS to OPERABLE status within 72 hours or be in at least HOT STANDBY and borated to a SHUTDOWN MARGIN equivalent to at least the limit as shown in Figure 3.1-2 at 200°F within the next 6 hours; restore at least two flow paths to OPERABLE status within the next 7 days or be in COLD SHUTDOWN within the next 30 hours.

SURVEILLANCE REQUIREMENTS

4.1.2.2 At least two of the above required flow paths shall be demonstrated OPERABLE:

a. At least once per 7 days by verifying that the temperature of the heat traced portion of the flow path from the boric acid tanks is greater than or equal to 65°F when it is a required water source;

b. At least once per 31 days by verifying that each valve (manual, power-operated, or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position;

c. At least once per 18 months during shutdown by verifying that each automatic valve in the flow path actuates to its correct position on a Safety Injection test signal; and

d. At least once per 18 months by verifying that the flow path required by Specification 3.1.2.2a. delivers at least 30 gpm to the RCS.

*The provisions of Specifications 3.0.4 and 4.0.4 are not applicable for entry into MODE 3 for the charging pump declared inoperable pursuant to Specification 4.1.2.3.2 provided that the charging pump is restored to OPERABLE status within 4 hours or prior to the temperature of one or more of the RCS cold legs exceeding 375°F, whichever comes first.

CHARGING PUMPS - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.1.2.3 One charging pump in the boron injection flow path required by Specification 3.1.2.1 shall be OPERABLE and capable of being powered from an OPERABLE emergency power source.

APPLICABILITY: MODES 4**, 5, and 6.

ACTION:

With no charging pump OPERABLE or capable of being powered from an OPERABLE emergency power source, suspend all operations involving CORE ALTERATIONS or positive reactivity changes.

SURVEILLANCE REQUIREMENTS

4.1.2.3.1 The above required charging pump shall be demonstrated OPERABLE by verifying, on recirculation flow, that a differential pressure across the pump of greater than or equal to 2300 psid is developed when tested pursuant to Specification 4.0.5.

4.1.2.3.2 All charging pumps, excluding the above required OPERABLE pump, shall be demonstrated inoperable* at least once per 31 days, except when the reactor vessel head is removed, by verifying that the motor circuit breakers are secured in the open position.

* An inoperable pump may be energized for testing or pump switching provided the discharge of the pump has been isolated from the RCS by a closed isolation valve with power removed from the valve operator, or by a manual isolation valve secured in the closed position. Reactor coolant pump seal injection flow may be maintained during the RCS isolation process.

**The provisions of Specification 3.0.4 and 4.0.4 are not applicable for entry into MODE 4 from MODE 3 for the charging pumps declared OPERABLE pursuant to Specification 4.1.2.4 provided that a maximum of one charging pump is OPERABLE within 4 hours after entry into MODE 4 from MODE 3 or prior to the temperature of one or more of the RCS cold legs decreasing below 325°F, whichever comes first.

CHARGING PUMPS - OPERATING

LIMITING CONDITION FOR OPERATION

3.1.2.4 At least two charging pumps shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.*

ACTION:

With only one charging pump OPERABLE, restore at least two charging pumps to OPERABLE status within 7 days or be in at least HOT STANDBY and borated to a SHUTDOWN MARGIN equivalent to at least the limit as shown in Figure 3.1-2 at 200°F within the next 6 hours; restore at least two charging pumps to OPERABLE status within the next 7 days or be in COLD SHUTDOWN within the next 30 hours.

SURVEILLANCE REQUIREMENTS

4.1.2.4 At least two charging pumps shall be demonstrated OPERABLE by verifying, on recirculation flow, that a differential pressure across each pump of greater than or equal to 2300 psid is developed when tested pursuant to Specification 4.0.5.

*The provisions of Specification 3.0.4 and 4.0.4 are not applicable for entry into MODE 3 for the charging pumps declared inoperable pursuant to Specification 4.1.2.3.2 provided that the charging pump is restored to OPERABLE status within 4 hours or prior to the temperature of one or more of the RCS cold legs exceeding 375°F, whichever comes first.

BORATION SYSTEMS (Continued)

With the RCS temperature below 350°F, one boron injection flow path/source is acceptable without single failure consideration on the basis of the stable reactivity condition of the reactor and the additional restrictions prohibiting CORE ALTERATIONS and positive reactivity changes in the event the single boron injection flow path/source becomes inoperable.

The limitation for a maximum of one charging pump to be OPERABLE and the Surveillance Requirement to verify all charging pumps except the required OPERABLE pump to be inoperable below 350°F provides assurance that a mass addition pressure transient can be relieved by the operation of a single PORV.

In order to provide for charging pump testing and switching below 350°F, an allowance to have both Centrifugal Charging Pumps energized simultaneously is permitted provided the pump discharge is isolated from the RCS. During pump switching, isolation from the RCS does not violate the requirement to have the boration flow path available below 350°F since the simultaneous energization of the two charging pumps and accompanying RCS isolation, is a momentary action under direct administrative control. Such actions are acceptable due to the limited time the flow path is isolated, the stable reactivity of the reactor, and the restrictions prohibiting CORE ALTERATIONS and positive reactivity should the isolated flow path not be immediately realigned following the pump testing or switching. Isolation of the RCS also precludes a cold overpressurization event during the pump switching or testing process. Reactor Coolant Pump seal flow may be maintained during the RCS isolation process.

The boration capability required below 200°F is sufficient to provide a variable SHUTDOWN MARGIN based on the results of a boron dilution accident analysis where the SHUTDOWN MARGIN is varied as a function of RCS boron concentration after xenon decay and cooldown from 200°F to 140°F. This condition requires 3200 gallons of 7000 ppm borated water from the boric acid storage system or 122,000 gallons of 2800 ppm borated water from the RWST for MODE 5 and 33,000 gallons of 2800 ppm borated water from the RWST for MODE 6.

The contained water volume limits include allowance for water not available because of discharge line location and other physical characteristics.

The limits on contained water volume and boron concentration of the RWST also ensure a pH value of between 7.5 and 10.0 for the solution recirculated within containment after a LOCA. This pH band minimizes the evolution of iodine and minimizes the effect of chloride and caustic stress corrosion on mechanical systems and components.

The OPERABILITY of one Boron Injection System during REFUELING ensures that this system is available for reactivity control while in MODE 6.

3/4.1.3 MOVABLE CONTROL ASSEMBLIES

The specifications of this section ensure that: (1) acceptable power distribution limits are maintained, (2) the minimum SHUTDOWN MARGIN is maintained, and (3) the potential effects of rod misalignment on associated accident analyses are limited. OPERABILITY of the control rod position indicators is required to determine control rod positions and thereby ensure compliance with the control rod alignment and insertion limits. Verification that the Digital Rod Position Indicator agrees with the demanded position within ± 12 steps at 24, 48, 120, and 259 steps withdrawn for the Control Banks and 18, 234, and 259 steps withdrawn for the Shutdown Banks provides assurances that the Digital Rod Position Indicator is operating correctly over the full range of indication. Since the Digital Rod Position Indication System does not indicate the actual shutdown rod position between 18 steps and 234 steps, only points in the indicated ranges are picked for verification of agreement with demanded position.

The ACTION statements which permit limited variations from the basic requirements are accompanied by additional restrictions which ensure that the original design criteria are met. Misalignment of a rod requires measurement of peaking factors and a restriction in THERMAL POWER. These restrictions provide assurance of fuel rod integrity during continued operation. In addition, those safety analyses affected by a misaligned rod are reevaluated to confirm that the results remain valid during future operation.

The maximum rod drop time restriction is consistent with the assumed rod drop time used in the safety analyses. Measurement with T_{avg} greater than or equal to 561°F and with all reactor coolant pumps operating ensures that the measured drop times will be representative of insertion times experienced during a Reactor trip at operating conditions.

Control rod positions and OPERABILITY of the rod position indicators are required to be verified on a nominal basis of once per 12 hours with more frequent verifications required if an automatic monitoring channel is inoperable. These verification frequencies are adequate for assuring that the applicable LCOs are satisfied.

PRESSURE/TEMPERATURE LIMITS (Continued)

1/4T vessel location is at a higher temperature than the fluid adjacent to the vessel ID. This condition, of course, is not true for the steady-state situation. It follows that at any given reactor coolant temperature, the ΔT developed during cooldown results in a higher value of K_{IR} at the 1/4T location for finite cooldown rates than for steady-state operation. Furthermore, if conditions exist such that the increase in K_{IR} exceeds K_{It}, the calculated allowable pressure during cooldown will be greater than the steady-state value.

The above procedures are needed because there is no direct control on temperature at the 1/4T location; therefore, allowable pressures may unknowingly be violated if the rate of cooling is decreased at various intervals along a cooldown ramp. The use of the composite curve eliminates this problem and assures conservative operation of the system for the entire cooldown period.

HEATUP

Three separate calculations are required to determine the limit curves for finite heatup rates. As is done in the cooldown analysis, allowable pressure-temperature relationships are developed for steady-state conditions as well as finite heatup rate conditions assuming the presence of a 1/4T defect at the inside of the vessel wall. The thermal gradients during heatup produce compressive stresses at the inside of the wall that alleviate the tensile stresses produced by internal pressure. The metal temperature at the crack tip lags the coolant temperature; therefore, the K_{IR} for the 1/4T crack during heatup is lower than the K_{IR} for the 1/4T crack during steady-state conditions at the same coolant temperature. During heatup, especially at the end of the transient, conditions may exist such that the effects of compressive thermal stresses and different K_{IR}'s for steady-state and finite heatup rates do not offset each other and the pressure-temperature curve based on steady-state conditions no longer represents a lower bound of all similar curves for finite heatup rates when the 1/4T flaw is considered. Therefore, both cases have to be analyzed in order to assure that at any coolant temperature the lower value of the allowable pressure calculated for steady-state and finite heatup rates is obtained.

The second portion of the heatup analysis concerns the calculation of pressure-temperature limitations for the case in which a 1/4T deep outside surface flaw is assumed. Unlike the situation at the vessel inside surface, the thermal gradients established at the outside surface during heatup produce stresses which are tensile in nature and thus tend to reinforce any pressure stresses present. These thermal stresses, of course, are dependent on both the rate of heatup and the time (or coolant temperature) along the heatup ramp. Furthermore, since the thermal stresses at the outside are tensile and

PRESSURE/TEMPERATURE LIMITS (Continued)

increase with increasing heatup rate, a lower bound curve cannot be defined. Rather, each heatup rate of interest must be analyzed on an individual basis.

Following the generation of pressure-temperature curves for both the steady-state and finite heatup rate situations, the final limit curves are produced as follows. A composite curve is constructed based on a point-by-point comparison of the steady-state and finite heatup rate data. At any given temperature, the allowable pressure is taken to be the lesser of the three values taken from the curves under consideration.

The use of the composite curve is necessary to set conservative heatup limitations because it is possible for conditions to exist such that over the course of the heatup ramp the controlling condition switches from the inside to the outside and the pressure limit must at all times be based on analysis of the most critical criterion.

Finally, the composite curves for the heatup rate data and the cooldown rate data are adjusted for possible errors in the pressure and temperature sensing instruments by the values indicated on the respective curves.

Although the pressurizer operates in temperature ranges above those for which there is reason for concern of nonductile failure, operating limits are provided to assure compatibility of operation with the fatigue analysis performed in accordance with the ASME Code requirements.

LOW TEMPERATURE OVERPRESSURE PROTECTION

The OPERABILITY of two PORVs or an RCS vent opening of at least 2.0 square inches ensures that the RCS will be protected from pressure transients which could exceed the limits of Appendix G to 10 CFR Part 50 when one or more of the RCS cold legs are less than or equal to 350°F. Either PORV has adequate relieving capability to protect the RCS from overpressurization when the transient is limited to either: (1) the start of an idle RCP with the secondary water temperature of the steam generator less than or equal to 50°F above the RCS cold leg temperatures, or (2) the maximum credible mass injection flow rate due to the startup of a single HHSI pump plus 100 gpm net charging flow, while the RCS is in a water solid condition and the RCS temperature is between 350°F and 200°F.

For RCS temperatures less than 200°F, the maximum overpressure event consists of operating a centrifugal charging pump with complete termination of letdown and a failure of the charging flow control valve to the full flow condition.

LOW TEMPERATURE OVERPRESSURE PROTECTION (Continued)

The design mass input transient in MODE 4 assumes that, with failure of one PORV to open, a safety injection signal will start one High Head Safety Injection pump. The normal charging and letdown flow paths would be isolated by a containment isolation phase "A" signal, but a Reactor Coolant Pump seal flow rate of 100 gpm would be maintained (normal seal flow is 20 gpm). The capacity of each PORV is sufficient to discharge the combined High Head Safety Injection and Reactor Coolant Pump seal flow rate at RCS pressure below the present maximum allowable PORV setpoint pressure for 200°F. In MODE 5, the mass input transient assumes the operation of one Centrifugal Charging Pump (CCP) with letdown isolated and the charging flow control valve full open. In each case the letdown is isolated allowing only the path through the RCP seals with a maximum CCP flow of 100 gpm. Whether one or both CCPs are lined up to the RCP seal flow path, the credible flow through the RCP seals can only be 20 gpm with letdown isolated unless a seal failure occurs. Therefore, by positioning the charging isolation valve closed during a pump testing or switching process, assurance is provided that a mass additional pressure transient, which exceeds the relief capacity of a single PORV, will not occur.

The Maximum Allowed PORV Setpoint for the Cold Overpressure Mitigation System (COMS) is derived by analysis which models the performance of the COMS assuming various mass input and heat input transients. Operation with a PORV Setpoint less than or equal to the maximum Setpoint ensures that Appendix G criteria will not be violated with consideration for a maximum pressure

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NOS. 62 AND 51 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 March 21, 1994, Houston Lighting & Power Company, et.al., (the licensee) requested changes to the Technical Specifications (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 modify Technical Specifications 3.1.2.1 and 3.1.2.3 to permit energizing of an inoperable centrifugal charging pump (CCP) in preparation for switching of the CCPs, provided pump discharge is isolated from the reactor coolant system.

2.0 BACKGROUND

The centrifugal charging pumps provide inventory control and normal boration to the reactor coolant system (RCS) and flow to the reactor coolant pump seals. During shutdown conditions, it is necessary to render a CCP inoperable to maintain the cold overpressure mitigating system design bases assumptions. This ensures that the flow will not exceed the relieving capacity of one power operated relief valve. Cold overpressure protection at the South Texas Project is provided by two pressurizer power operated relief valves. Current technical specifications (TS) require that a boration flow path be maintained during Modes 4, 5, and 6, and, because it is not acceptable to have both charging pumps running simultaneously and aligned to the RCS due to the potential pressure transients, technical specifications also require that only one CCP be operable in Modes 4, 5, and 6. During shutdown conditions, switching from one CCP to the other is sometimes desirable for pump testing purposes. Therefore, the licensee proposes to modify TS 3.1.2.3 to allow both CCPs to be energized simultaneously for pump switching. Technical Specification 3.1.2.1 would also be modified to allow the pumps to be briefly isolated from the RCS during pump switching.

3.0 EVALUATION

The licensee proposes to modify the note of Surveillance Requirement 4.1.2.3.2 (which permits an inoperable CCP to be energized for pump testing purposes) by extending the note to also include pump switching. The note requires that the discharge of the pump be isolated from the RCS during the switching, but allows reactor coolant pump seal injection flow to be maintained during the isolation. A note would also be added to TS 3.1.2.1 stating that the boron injection flow path requirements are not applicable during CCP testing or switching.

The requirements of Technical Specifications 3.1.2.1 and 3.1.2.3 as they currently exist, do not allow for both CCPs to be simultaneously running for switching purposes during pump testing. The proposed changes would allow two CCPs to be energized during switching and would protect the RCS from overpressurization by briefly isolating it from the CCPs while allowing continued reactor coolant pump seal injection flow.

The proposed changes could potentially impact two events: (1) cold overpressurization of the reactor coolant system, and (2) boron dilution resulting in a return to criticality. The revised note of TS 3.1.2.1 requires that the RCS be isolated during testing or pump switching. Therefore, charging pump flow is not increased and current cold overpressurization analyses would remain valid. The revised technical specification provides for continued flow through the reactor coolant pump seals. Whether one or both CCPs are lined up to the reactor coolant pump seal flow path, the credible flow through the seals can only be 20 gpm with letdown isolated. This is less than the maximum analyzed CCP flow of 100 gpm with failure of one power operated relief valve to open. Therefore, cold overpressurization is not a safety concern for this change. Boron dilution is a potential concern because the boron injection flow paths are isolated during pump switching. The licensee has evaluated the effect of temporary loss of the flow paths and has determined that the brief period in which pump switching occurs would not have a significant effect on the margin of safety for this event. The pump energization and accompanying RCS isolation is a momentary action under direct administrative control. Because the time in which the flow paths would be isolated is limited and because isolation would occur during modes in which the reactor is relatively stable, this action is acceptable. If one of the boron injection flow paths could not be restored following pump switching, the action statement of TS 3.1.2.1 would be entered which requires that all operations involving core alterations or positive reactivity changes be suspended. Therefore, boron dilution is not a safety concern for this change.

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 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 17602). Accordingly, the amendment meets 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. Skay

Date: July 12, 1994