

September 18, 1991

Docket No. 50-499

DISTRIBUTION:

Mr. Donald P. Hall  
Group Vice-President, Nuclear  
Houston Lighting & Power Company  
P. O. Box 1700  
Houston, Texas 77251

Docket File	GHill (4)
NRC PDR	Wanda Jones
Local PDR	CGrimes
PDIV-2 Reading	PDIV-2 Plant File
BBoger	ACRS (10)
MVirgilio	GPA/PA
EPeyton	ARM/LFMB
GDick (2)	AHowell, Region IV
OGC	LTran
DHagan	RJones

Dear Mr. Hall:

SUBJECT: ISSUANCE OF AMENDMENT NO. 18 TO FACILITY OPERATING LICENSE  
NPF-80 - SOUTH TEXAS PROJECT, UNIT 2 (TAC NO. 77011)

The Commission has issued the enclosed Amendment No. 18 to Facility Operating License No. NPF-80 for the South Texas Project, Unit 2. The amendment consists of changes to the Technical Specifications (TSs) in response to Houston Lighting & Power Company's application dated June 12, 1990 (ST-HL-AE-3485), as supplemented by letter dated July 17, 1991 (ST-HL-AE-3828).

The amendment changes the Appendix A Technical Specifications by deleting the autoclosure interlock portion of the Surveillance Requirements pertaining to TS 3/4.5.6, Residual Heat Removal System.

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

Sincerely,

Original Signed By

George F. Dick, Jr., Project Manager  
Project Directorate IV-2  
Division of Reactor Projects - III/IV/V  
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 18 to NPF-80
2. Safety Evaluation

**NRC FILE CENTER COPY**

cc w/enclosures:  
See next page

OFC	: PDIV-2/LA	: PDIV-2/PM	: OGC	: PDIV-2/D	:	:
NAME	: EPeyton	: GDick:	: EHOLLER	: SBlack	:	:
DATE	: 8/23/91	: 8/27/91	: 9/3/91	: 9/12/91	:	:

OFFICIAL RECORD COPY  
Document Name: STP UNIT 2/TAC NO. 77011

9110020358 910718  
PDR ADDCK 05000499  
P PDR

*Handwritten:* FOL 1/1 CP'

September 18, 1991

cc w/enclosures:

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  
P. O. Box 1088  
Austin, Texas 78767

Mr. R. J. Costello  
Mr. M. T. Hardt  
City Public Service Board  
P. O. Box 1771  
San Antonio, Texas 78296

Mr. D. E. Ward  
Mr. T. M. Puckett  
Central Power and Light Company  
P. O. Box 2121  
Corpus Christi, Texas 78403

INPO  
Records Center  
1100 Circle 75 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. William J. Jump  
Manager, Nuclear Licensing  
Houston Lighting & 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 & Power Company  
P. O. Box 61867  
Houston, Texas 77208



762022

**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
WASHINGTON, D.C. 20555

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. 18  
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 June 12, 1990, as supplemented by letter dated July 17, 1991, 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. 18, 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 and is to be implemented prior to restart from the second refueling outage, which is presently scheduled to begin in September 1991.

FOR THE NUCLEAR REGULATORY COMMISSION



Suzanne C. Black, Director  
Project Directorate IV-2  
Division of Reactor Projects - III/IV/V  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: September 18, 1991

ATTACHMENT TO LICENSE AMENDMENT NO. 18

FACILITY OPERATING LICENSE NO. NPF-80

DOCKET NO. 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 vertical lines indicating the areas of change.

REMOVE

3/4 5-11  
B 3/4 5-3

INSERT

3/4 5-11  
B 3/4 5-3

## EMERGENCY CORE COOLING SYSTEMS

### 3/4.5.6 RESIDUAL HEAT REMOVAL (RHR) SYSTEM

#### LIMITING CONDITION FOR OPERATION

---

3.5.6 Three independent Residual Heat Removal (RHR) loops shall be OPERABLE with each loop comprised of:

- a. One OPERABLE RHR pump,
- b. One OPERABLE RHR heat exchanger, and
- c. One OPERABLE flowpath capable of taking suction from its associated RCS hot leg and discharging to its associated RCS cold leg.\*

APPLICABILITY: MODES 1, 2 and 3.

#### ACTION:

- a. With one RHR loop inoperable, restore the required loop to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- b. With two RHR loops inoperable, restore at least two RHR loops to OPERABLE status within 24 hours or be in at least HOT STANDBY within 6 hours and in HOT SHUTDOWN within the following 6 hours.
- c. With three RHR loops inoperable, immediately initiate corrective action to restore at least one RHR loop to OPERABLE status as soon as possible.

#### SURVEILLANCE REQUIREMENTS

---

4.5.6.1 Each RHR loop shall be demonstrated OPERABLE pursuant to the requirements of Specification 4.0.5.

4.5.6.2 At least once per 18 months by verifying automatic isolation\*\* and interlock action of the RHR system from the Reactor Coolant System to ensure that:

- a. With a simulated or actual Reactor Coolant System pressure signal greater than or equal to 350 psig, the interlocks prevent the valves from being opened, and
- \*\*b. With a simulated or actual Reactor Coolant System pressure signal less than or equal to 700 psig, the interlocks will cause the valves to automatically close.

---

\* Valves MOV-0060 A, B, and C and MOV-0061 A, B, and C may have power removed to support the FHAR (Fire Hazard Analysis Report) assumptions.

\*\*This surveillance is applicable to Unit 1 only.

## EMERGENCY CORE COOLING SYSTEMS

### BASES

---

---

#### 3/4.5.6 RESIDUAL HEAT REMOVAL (RHR) SYSTEM

The OPERABILITY of the RHR system ensures adequate heat removal capabilities for Long-Term Core Cooling in the event of a small-break loss-of-coolant accident (LOCA), an isolatable LOCA, or a secondary break in MODES 1, 2, and 3. The limits on the OPERABILITY of the RHR system ensure that at least one RHR loop is available for cooling including single active failure criteria.

The surveillances ensure that RHR system isolation valves close upon an overpressure protection system signal.\*

\*This surveillance is applicable to Unit 1 only.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 18 TO

FACILITY OPERATING LICENSE NO. NPF-80

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

1.0 INTRODUCTION

By application dated June 12, 1990 (ST-HL-AE-3485), 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 South Texas Project, Units 1 and 2. The proposed changes would delete the autoclosure interlock (ACI) portion of the Surveillance Requirements pertaining to TS 3/4.5.6, Residual Heat Removal System (RHR). By letter dated July 17, 1991 (ST-HL-AE-3828), the staff was advised that the licensee proposes to implement the change on Unit 2 during the second refueling outage which will begin in September 1991. The proposed change will be implemented on Unit 1 during the fourth refueling outage which is scheduled to begin in October 1992. The July 17, 1991, submittal provided additional clarifying information and did not change the initial no significant hazards consideration determination.

2.0 BACKGROUND

During normal operating conditions, a double barrier between the high pressure reactor coolant system (RCS) and the low pressure residual heat removal system (RHRS) is provided by two motor-operated valves. These valves are closed when the RCS is hot and pressurized (normal operating conditions) and open when the RHRS is in operation (cooldown or refuel). Each of these valves is provided with manual controls on the main control board and has two automatic interlocks associated with its control circuitry, the Autoclosure Interlock (ACI) and the Open Permissive Interlock (OPI).

The OPI prevents inadvertent opening of the suction/isolation valves when RCS pressure is above the design pressure of the RHRS considering the RHR pump discharge pressure. The ACI ensures that both isolation valves are fully closed when RCS is pressurized above RHRS design pressure.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 18 TO

FACILITY OPERATING LICENSE NO. NPF-80

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

1.0 INTRODUCTION

By application dated June 12, 1990 (ST-HL-AE-3485), 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 South Texas Project, Units 1 and 2. The proposed changes would delete the autoclosure interlock (ACI) portion of the Surveillance Requirements pertaining to TS 3/4.5.6, Residual Heat Removal System (RHR). By letter dated July 17, 1991 (ST-HL-AE-3828), the staff was advised that the licensee proposes to implement the change on Unit 2 during the second refueling outage which will begin in September 1991. The proposed change will be implemented on Unit 1 during the fourth refueling outage which is scheduled to begin in October 1992. The July 17, 1991, submittal provided additional clarifying information and did not change the initial no significant hazards consideration determination.

2.0 BACKGROUND

During normal operating conditions, a double barrier between the high pressure reactor coolant system (RCS) and the low pressure residual heat removal system (RHRS) is provided by two motor-operated valves. These valves are closed when the RCS is hot and pressurized (normal operating conditions) and open when the RHRS is in operation (cooldown or refuel). Each of these valves is provided with manual controls on the main control board and has two automatic interlocks associated with its control circuitry, the Autoclosure Interlock (ACI) and the Open Permissive Interlock (OPI).

The OPI prevents inadvertent opening of the suction/isolation valves when RCS pressure is above the design pressure of the RHRS considering the RHR pump discharge pressure. The ACI ensures that both isolation valves are fully closed when RCS is pressurized above RHRS design pressure.

However, during cold shutdown and refueling operations, inadvertent isolation of the RHRS caused by failure of the ACI circuitry at times has resulted in loss of residual heat removal capability.

In February 1988, the Westinghouse Owners' Group evaluated the removal of the ACI circuitry on Westinghouse designed plants and issued WCAP-11736, "Residual Heat Removal System Autoclosure Interlock Deletion Report for the Westinghouse Owners Group," Volume 1 and 2, Revision 0.

The staff completed the review of WCAP-11736 and by letter dated August 8, 1989, provided a safety evaluation (SE) which concluded that the information in the WCAP report can be used to supplement plant-specific requests to remove the ACI. In the SE, the staff found that the removal of the ACI for Westinghouse plants produces a net safety benefit provided that the following five key improvements are in place.

1. An alarm should be added to each RHRS suction valve that will actuate if the valve is open and the pressure is high.
2. Valve position indication to the alarm should be provided and power to the switches should not be affected by power lockout of valve.
3. Procedural improvements described in the WCAP should be implemented.
4. Power should be removed from the RHRS suction valves prior to their being leak-checked, if feasible.
5. RHRS suction valves operators should be sized such that the valves cannot be opened against full system pressure.

### 3.0 EVALUATION

The licensee referenced the approved Westinghouse Owners' Group (WOG) report WCAP-11736. In this report, the South Texas Project, Units 1 and 2 plants (STP-1 and STP-2) are shown to be similar to plants in Group 2 for which the reference plant is Callaway.

The RHRS at STP-1 and STP-2 consists of three completely separate trains, two isolation valves per train arranged in series on the inlet between the high pressure RCS and low pressure RHRS. In addition, the RHRS is completely contained inside the containment building. An RHRS interfacing system LOCA would release coolant to containment rather than bypass containment.

As recommended in the WCAP, the licensee performed a probabilistic scoping analysis for a loss of RHR during an outage and determined that the deletion of the ACI results in a decrease in the likelihood of loss of RHRS.

For cold overpressurization protection, the licensee stated that cold overpressure protection is provided by the pressurizer power operated relief valves and that the RHRS discharge relief valves are not required to operate to mitigate the consequence of a overpressurization event at low RCS temperature. The staff found this to be acceptable and it conforms to the WCAP report.

The removal of the ACI at STP-1 and STP-2 will consist of hardware changes and procedural enhancements which the staff believes will produce a net safety benefit compared to the current plant arrangement. The hardware changes at STP-1 and STP-2 will consist of the addition of an alarm to each suction valve. The alarm will actuate if the valve is open and the pressure is greater than the open permissive setpoint and less than the RHR design pressure minus the RHR pump head pressure. The OPI will not be affected by the addition of the alarm and the removal of the ACI circuitry. The valve position indication will be provided from the spare Limitorque limit switch contacts on the RHR suction valve. The power to these contacts is provided by separate power supply such that the alarm and valve position indication in the control room will still be available following power lockout of the RHR suction valves.

The licensee has identified procedural modifications that will be completed and implemented by the time the ACI deletion is completed. The alarm response procedure used during plant startup will be modified to reflect the alarm recognition responses for the added alarm. The procedure will be revised to direct the operator to take the necessary actions to close the open RHR suction valves once the alarm is initiated. If this is not possible the operator will be instructed to depressurize the RCS to return to non-alarm condition. In addition, test procedures for the alarm will be added to verify that the alarm remains operable.

One of the staff's recommendations was that the valve be leak-tested after the power to the valve has been removed, if feasible, to ensure that the valve is closed. The licensee stated that the suction valves for STP-1 and STP-2 will be leak-tested prior to returning the valves to service. However, this leak test is to be performed at low temperature and without first removing power due to personnel safety considerations. The staff finds this to be acceptable as the licensee provides position verification to ensure that the valve is actually closed when power is removed following the leak test. This is required by Step 8.8 of the procedure POP3ZG0001 for plant heatup that references procedure POP2RH0001 Step 8.0 in which there is a requirement for verification of RHR suction valve closure by indication on the Main Control Board.

The licensee reviewed the sizing of the RHR suction valves and stated that they are sized such that it would be unlikely that these valves could be opened against full system pressure.

The staff has reviewed the South Texas Project, Units 1 and 2 submittal and has found that the licensee meets the requirements for the removal of the autoclosure interlock by implementing the hardware and procedural modifications. The proposed amendment to delete ACI from the Technical Specifications for Unit 2 and from the UFSAR is therefore 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 amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. The NRC staff has determined that the amendment involves 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 amendment involves no significant hazards consideration, and there has been no public comment on such finding (55 FR 34371). 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 amendment.

#### 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 amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: L. Tran

Date: September 18, 1991