

Docket



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

September 26, 1991

Docket Nos. 50-498  
and 50-499

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

Dear Mr. Hall:

SUBJECT: ISSUANCE OF AMENDMENT NOS. 28 AND 19 TO FACILITY OPERATING  
LICENSE NOS. NPF-76 AND NPF-80 - SOUTH TEXAS PROJECT, UNITS 1  
AND 2 (TAC NOS. 73795 AND 73796)

The Commission has issued the enclosed Amendment Nos. 28 and 19 to Facility Operating License Nos. NPF-76 and NPF-80 for the South Texas Project, Units 1 and 2. The amendments consist of changes to the Updated Final Safety Analysis Report (UFSAR) in response to your application dated July 14, 1989 (ST-HL-AE-2940) which identified the changes as an unreviewed safety question.

The amendments revise the UFSAR Sections 6.4, 6.5, Appendix 7A, 9.4, 15.6, and 15.7 based on the recalculation of radiological doses for a loss of cooling accident, a fuel handling accident, and a gaseous waste processing system failure. The reanalyses incorporate the effects due to heater failure in the control room or fuel handling building HVAC systems, which were not previously considered. The changes reflect increased doses, but remain substantially below established limits and no modification to plant design is involved.

These amendments are being issued pursuant to the requirements of 10 CFR 50.59(c) because the review by Houston Lighting & Power Company identified the changes as an unreviewed safety question. No changes to the Technical Specifications are required by these amendments.

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A copy of the Safety Evaluation supporting the amendments is also enclosed. The 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. 28 to NPF-76
- 2. Amendment No. 19 to NPF-80
- 3. Safety Evaluation

cc w/enclosures:  
See next page

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Mr. Donald P. Hall

- 3 -

September 26, 1991

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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. 50-498  
SOUTH TEXAS PROJECT, UNIT 1  
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 28  
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 July 14, 1989, 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, by Amendment No. 28, the license is amended to authorize revision of the Updated Final Safety Analysis Report (UFSAR) as set forth in the application for amendment by Houston Lighting & Power Company dated July 14, 1989. Houston Lighting & Power Company shall update the UFSAR to reflect the revised description authorized by this amendment in accordance with 10 CFR 50.71(e).
3. The license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

*for* *S. C. Black*

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

Date of Issuance: September 26, 1991



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. 19  
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 July 14, 1989, 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, by Amendment No. 19, the license is amended to authorize revision of the Updated Final Safety Analysis Report (UFSAR) as set forth in the application for amendment by Houston Lighting & Power Company dated July 14, 1989. Houston Lighting & Power Company shall update the UFSAR to reflect the revised description authorized by this amendment in accordance with 10 CFR 50.71(e).
3. The license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

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

Date of Issuance: September 26, 1991



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NOS. 28 AND 19 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 letter dated July 14, 1989 (ST-HL-AE-2940), Houston Lighting & Power Company, et. al., (the licensee) requested changes to the Final Safety Analysis Report (FSAR) for the South Texas Project, Units 1 and 2. The changes to the FSAR would revise Sections 6.4, 6.5, Appendix 7A, 9.4, 15.6, and 15.7 by replacing previously calculated offsite and control room radiological doses with the results of reanalyses. The request for these revisions resulted mainly from the licensee's single failure analysis of the electric heater (previously unconsidered) in the fuel handling building and control room HVAC systems. With the submittal of the Updated Final Safety Analysis Report (UFSAR), the proposed changes then became applicable to that document.

The current design basis accidents in the South Texas UFSAR affected by the licensee's heater failure analysis and dose recalculations include the LOCA, the fuel handling accident and the gaseous waste processing system failure accident. The dose calculations for the control room operator are also affected.

2.0 BACKGROUND

The engineered safety feature filter systems for South Texas Project, Units 1 and 2 include: (1) the fuel handling building (FHB) exhaust subsystem, and (2) the main control room HVAC makeup and cleanup filter system. The FHB exhaust subsystem consists of two redundant filter trains, and each train consists of three filter units to mitigate the radiological consequences of the fuel handling accident as well as the LOCA. The main control room HVAC makeup and cleanup filter system consists of three redundant filter units to

maintain the habitability of the control room against radiological consequences during and following a postulated design basis accident. Each filter unit for the FHB exhaust subsystem and main control room cleanup filter system consists of, among other things, an electrical heater to reduce the moisture in the air stream to less than 70 percent relative humidity in order to protect the charcoal adsorber from moisture.

### 3.0 DISCUSSION

In the South Texas UFSAR, the licensee evaluated all components in the filter units against single active failure criterion except the heater. In this proposed UFSAR revision, the licensee addressed the effect of previously unconsidered filter heater failures in the FHB and control room HVAC systems by recalculating offsite and control room operator doses following a LOCA, a fuel-handling accident, and a gaseous waste processing system (GWPS) failure.

The licensee postulated the occurrence of an air flow imbalance and low-flow in a filter unit, which would trip the heater in the filter train, causing the reduction of charcoal adsorber iodine removal efficiency. The licensee further postulated that it would take 30 minutes for the operators to detect and correct flow imbalance and activate a standby filter unit. The staff accepted the licensee's postulations and used charcoal adsorber iodine removal efficiencies of 30 percent for organic and 90 percent for elemental iodines during the first 30 minutes at greater than 70 percent relative humidity following an accident.

In reviewing the licensee's analyses, the staff independently calculated the thyroid and whole-body doses for the LOCA, the fuel handling accident, and WGPS failure. The staff's assumptions used in calculating the doses to the control room operator and offsite doses are the same as those shown in the South Texas safety evaluation report (SER) Tables 6.1, 15.5, and 15.6 except the charcoal adsorber iodine removal efficiencies for the first 30 minutes following an accident. The staff's calculated control room operator doses are summarized in Table 1. For dose calculations, the staff used revised iodine protection factors given in Table 2. The offsite doses are shown in a revision to Table 15.1 of the South Texas SER.

On the basis of this evaluation, the staff concludes that the electric heater failure in the filter unit will still leave the control room in a safe and habitable condition during and following a design basis accident by providing adequate protection against radiation so that the radiological exposures to the control room operator will be within the limits specified in General Design Criteria 19 of Appendix A to 10 CFR Part 50 and within the guidelines provided in Standard Review Plan Section 6.4, and that the offsite thyroid and whole-body doses are still within the referenced values specified in 10 CFR Part 100. Therefore, the staff finds the South Texas UFSAR changes as proposed by the licensee to be acceptable. The basis for staff acceptance is that the proposed UFSAR changes will not alter our conclusions in the South Texas SER (NUREG-0781) dated April 1986.

#### 4.0 STATE CONSULTATION

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

#### 5.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding (54 FR 42857). 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 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 amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: Jay Y. Lee

Date: September 26, 1991

#### Attachments:

1. Table 1 - Control Room Operator Doses
2. Table 2 - Iodine Protection Factors
3. Revision to Table 15.1 of the  
South Texas SER

TABLE 1  
CONTROL ROOM OPERATOR DOSES (rem)

	<u>Calculated</u>		<u>SRP 6.4</u>
	<u>Original</u> <sup>1</sup>	<u>Revised</u>	
Thyroid dose	9.1	16.6	30
Whole-body dose	3.1	3.1	5

<sup>1</sup>Section 6.4 of South Texas SER dated April 1986.

TABLE 2

IODINE PROTECTION FACTORS (IPF)

<u>Elemental and Particulate Iodines</u>	<u>IPF</u>
(1) Heater Failure	
0-30 min	575
30 min - 30 day	1050
(2) Filter Bypass	
0-30 day	870
 <u>Organic Iodine</u>	
(1) Heater Failure	
0-30 min	145
30 min - 30 day	1050
(2) Filter Bypass	
0-30 day	870

Table 15.1 Radiological consequences of design-basis accidents, in rems

Postulated accident	Exclusion area boundary		Low population zone	
	Thyroid	Whole Body	Thyroid	Whole body
<b>Loss-of-coolant accident</b>				
Containment leakage				
0-2 hours	150	3.6	20.5	0.49
2-8 hours			22.6	0.50
8-24 hours			12.0	0.21
24-96 hours			8.9	0.05
96-720 hours			6.4	0.02
Total containment leakage	141	3.6	69.1	1.27
ECCS component leakage	1.0	<0.1	1.8	<0.1
Supplementary purge subsystem contribution	11.5	<0.1	1.6	<0.1
Iodine re-evolution during spray recirculation contribution	11.8	<0.1	1.6	<0.1
Total	<u>174.3</u>	<u>3.6</u>	<u>75.4</u>	<u>1.3</u>
Steamline break outside containment				
Fuel failures caused by stuck control rod case	88	0.4	47	0.3
Accident-induced spike case	3.0	<0.1	2.5	<0.1
Control rod ejection				
Containment leakage pathway	30	<1.0	36	<1.0
Secondary system release pathway	6	<1.0	0.7	<0.1
Fuel handling accident				
In fuel building case	26	0.7	4.1	0.1
Inside containment case	29	0.2	3.9	0.04
Small line break outside containment				
Letdown line failure	1.3	<0.1	0.2	<0.1
Pressurizer sample line failure	2.1	<0.1	0.3	<0.1
Steam generator tube rupture*				
Case 1 (coolant activity DEI-131 at 60 µCi/gm)				
Case 2 (coolant activity DEI-131 at 1 µCi/gm)				

\*Confirmatory items.