June 11, 1990

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. 16 AND 6 TO FACILITY OPERATING LICENSE NOS. NPF-76 AND NPF-80 - SOUTH TEXAS PROJECT, UNITS 1 AND 2 (TAC NOS. 76085 AND 76086)

The Commission has issued the enclosed Amendment Nos. 16 and 6 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 Technical Specifications (TSs) in response to your application dated March 1, 1990 (ST-HL-AE-3387).

The amendments change the Appendix A Technical Specifications by permitting the use of fuel with maximum enrichments of 4.5 weight percent Uranium 235. There were no changes to the fuel burnup previously approved by the staff.

A copy of the Safety Evaluation supporting the amendments is enclosed. Also enclosed is a copy of the Notice of Issuance which has been forwarded to the Office of the Federal Register for publication.

Sincerely,
Original signed by:

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

Enclosures:
1. Amendment No. 16 to NPF-76
2. Amendment No. 6 to NPF-80
3. Safety Evaluation
4. Notice of Issuance

cc w/enclosures:
See next page

DISTRIBUTION:

Docket File	NRC PDR	Local PDR	PD4 Reading
G. Holahan	C. Grimes	E. Peyton (2)	L. Kopp
G. Dick (2)	OGC	D. Hagan	E. Jordan
G. Hill (8)	Wanda Jones	J. Calvo	PD4 Plant File
ACRS (10)	GPA/PA	ARM/LFMB	

*For previous concurrences see attached ORC

CP-1

RF01

OFC	:PD4/LA*	:PD4/PM*	:OGC*	:PDIV-2/D	:	:	:
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OFFICIAL RECORD COPY Document Name: STP AMEND/76085/86

cc w/enclosures:
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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. 16
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 1, 1990, 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. 16, 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.

FOR THE NUCLEAR REGULATORY COMMISSION

Christopher I. Grimes

Christopher I. Grimes, Director
Project Directorate IV-2
Division of Reactor Projects - III,
IV, V and Special Projects
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: June 11, 1990

ATTACHMENT TO LICENSE AMENDMENT NOS. 16 AND 6

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

DOCKET NOS. 50-498 AND 50-499

Replace the following page of the Appendix A Technical Specifications with the attached page. The revised page is identified by Amendment number and contains a vertical line indicating the area of change. The corresponding overleaf page is also provided to maintain document completeness.

Remove	Insert
5-6	5-6

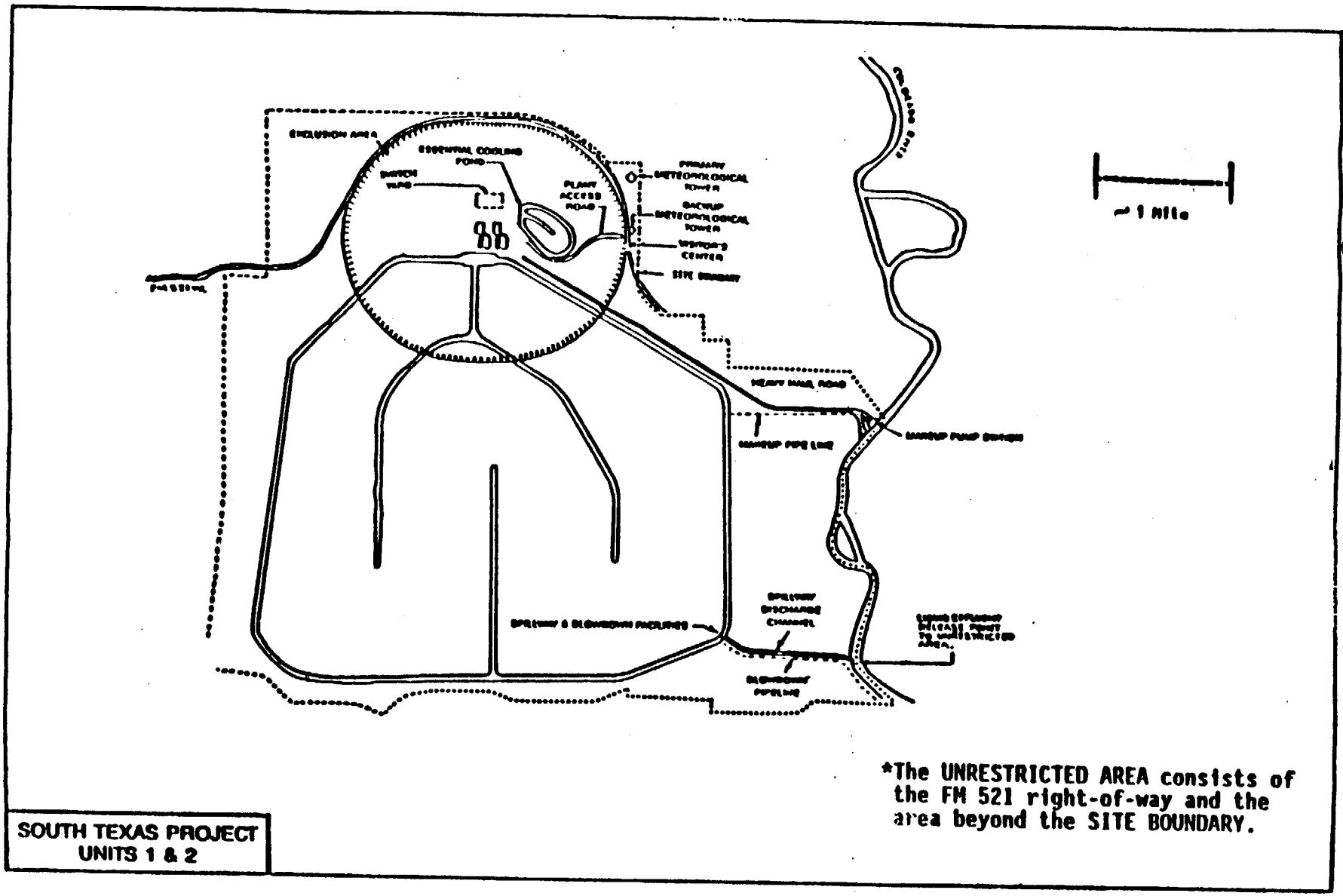

FIGURE 5.1-4

UNRESTRICTED AREA* AND SITE BOUNDARY FOR RADIOACTIVE LIQUID EFFLUENTS

5.3 REACTOR CORE

FUEL ASSEMBLIES

5.3.1 The core shall contain 193 fuel assemblies with each fuel assembly containing 264 fuel rods clad with Zircaloy-4. Each fuel rod shall have a nominal active fuel length of 168 inches. The initial core loading shall have a maximum enrichment of 3.5 weight percent U-235. Reload fuel shall be similar in physical design to the initial core loading and shall have a maximum enrichment of 4.5 weight percent U-235.

CONTROL ROD ASSEMBLIES

5.3.2 The core shall contain 57 full-length control rod assemblies. The full-length control rod assemblies shall contain a nominal 158.9 inches of absorber material. The absorber material within each assembly shall be silver-indium-cadmium or hafnium. Mixtures of hafnium and silver-indium-cadmium are not permitted within a bank. All control rods shall be clad with stainless steel tubing.

5.4 REACTOR COOLANT SYSTEM

DESIGN PRESSURE AND TEMPERATURE

5.4.1 The Reactor Coolant System is designed and shall be maintained:

a. In accordance with the Code requirements specified in Section 5.2 of the FSAR, with allowance for normal degradation pursuant to the applicable Surveillance Requirements,

b. For a pressure of 2485 psig, and

c. For a temperature of 650°F, except for the pressurizer which is 680°F.

VOLUME

5.4.2 The total water and steam volume of the Reactor Coolant System is 13,814 $\pm$ 100 cubic feet at a nominal T_{avg} of 561°F.

5.5 METEOROLOGICAL TOWER LOCATION

5.5.1 The meteorological towers shall be located as shown on Figure 5.1-1.

5.6 FUEL STORAGE

CRITICALITY

5.6.1 The spent fuel storage racks are designed and shall be maintained with:

a. A k_{eff} equivalent to less than or equal to 0.95 when flooded with unborated water, which includes a conservative allowance of

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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. 6
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 1, 1990, 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. 6, 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.

FOR THE NUCLEAR REGULATORY COMMISSION

Christopher I. Grimes

Christopher I. Grimes, Director
Project Directorate IV-2
Division of Reactor Projects - III,
IV, V and Special Projects
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: June 11, 1990

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NOS. 16 AND 6 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 1, 1990 (ST-HL-AE-3387), 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. The proposed changes would change Technical Specification (TS 5.3.1) to increase the maximum fuel enrichment to 4.5 weight percent Uranium 235. The current value for enrichment is 3.5 weight percent. The proposed change consisted of allowing Westinghouse 17x17 standard extra length (STD/XL), optimized (OFA), and VANTAGE 5 (V5) fuel with a maximum enrichment of 4.5 weight percent (w/o) U-235 to be stored in the fresh fuel storage racks at South Texas Units 1 and 2. The staff has previously approved storage of 4.5 w/o Westinghouse 17x17 fuel in the high density spent fuel storage racks.

The licensee did not propose any change to the presently approved core average burnup of 23,740 megawatt days/metric ton.

2.0 EVALUATION

The fresh fuel storage racks consist of cells on a 21-inch center-to-center spacing. Under normal conditions, fresh fuel is stored in these cells in a dry (air) condition. However, the staff requires the dry storage racks to be designed so that the effective multiplication factor (k-eff) for the racks fully flooded with pure water is no greater than 0.95. The staff also requires the dry storage racks to be analyzed for extreme, low-density water or other hydrogenous material as may occur for fog, mist, and fire-fighting foam. For this latter case, the extreme, low-density water or other hydrogenous material must result in a maximum k-eff no greater than 0.98.

3 pp.

The calculation of k-eff makes use of the KENO IV three-dimensional Monte Carlo theory computer code with neutron cross sections generated by the AMPX system of codes. These codes were benchmarked against a series of critical experiments which included characteristics similar to the South Texas fresh fuel racks. These comparisons resulted in a model bias of +0.0083 and a 95/95 probability/confidence uncertainty of 0.0018 in the model bias. The worst case model of the fresh fuel storage racks is based on the minimum thickness of the sheet metal of the rack as well as a fuel enrichment of 4.55 w/o U-235 to account for manufacturing variations. Both of these assumptions are conservative.

For the full density moderation analysis, the fuel array is assumed to be infinite in lateral and axial extent. This is conservative as it precludes any neutron leakage from the array. The maximum worst case k-eff is calculated to be 0.9252, meeting the NRC acceptance criterion of no greater than 0.95. For the low density optimum moderation analysis, the fuel array is finite in all directions and the concrete walls and floor are modelled. This is conservative for low water density conditions since the presence of concrete reflects neutrons back into the fuel array more efficiently than they would be with just low density water. The maximum worst case k-eff is calculated to be 0.9361, thereby meeting the NRC acceptance criterion of no greater than 0.98. In addition, the staff concludes that these and other appropriate uncertainties have been considered and have been determined at least at a 95% probability 95% confidence level and are acceptable.

The fresh fuel racks are maintained in a dry environment under normal conditions. The worst case accident scenarios are the introduction of full density and low density moderator, the results of which have been shown to be acceptable.

3.0 SUMMARY

Based on the review described above, the staff finds the criticality aspects of storage of Westinghouse 17x17 fuel with maximum enrichment of 4.5 w/o U-235 in the South Texas Units 1 and 2 fresh fuel storage racks meet the requirements of General Design Criterion 62 for the prevention of criticality in fuel storage and handling. The staff has previously approved the South Texas high density spent fuel racks for storage of Westinghouse fuel with enrichments up to 4.5 w/o U-235. Therefore, the maximum enrichment limit of reload fuel given in Technical Specification 5.3.1 can be increased to 4.5 w/o U-235.

4.0 ENVIRONMENTAL CONSIDERATION

Pursuant to 10 CFR 51.21, 51.32 and 51.35, an environmental assessment and finding of no significant impact was published in the Federal Register on June 8, 1990 (55 FR 23492).

Accordingly, based upon the environmental assessment, the Commission has determined that issuance of these amendments will not have a significant effect on the quality of the human environment.

5.0 CONCLUSION

Based upon its evaluation of the proposed changes to the South Texas Project, Units 1 and 2, Technical Specifications, the staff has concluded that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public. The staff, therefore, concludes that the proposed changes are acceptable.

Date: June 11, 1990

Principal Contributor: L. Kopp

UNITED STATES NUCLEAR REGULATORY COMMISSION

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

NOTICE OF ISSUANCE OF AMENDMENTS TO

FACILITY OPERATING LICENSES

The U.S. Nuclear Regulatory Commission (Commission) has issued Amendment Nos. 16 and 6 to Facility Operating License Nos. NPF-76 and NPF-80 issued to Houston Lighting & Power Company which consisted of changes to the Final Safety Analysis Report related to the operation of the South Texas Project, Units 1 and 2 located in Matagorda County, Texas.

The amendments are effective as of the date of issuance.

The amendments revised the Technical Specification 5.3.1 to permit the use of fuel with maximum enrichments of 4.5 weight percent Uranium 235.

The application for the amendments complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendments.

Notice of Consideration of Issuance of Amendments and Opportunity for Hearing in connection with this action was published in the FEDERAL REGISTER on April 4, 1990 (55 FR 12613). No request for a hearing or petition for leave to intervene was filed following this notice.

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The Commission has prepared an Environmental Assessment related to the action and has determined not to prepare an environmental impact statement. Based upon the environmental assessment, the Commission has concluded that the issuance of these amendments will not have a significant effect on the quality of the human environment.

For further details with respect to the action see (1) the application for amendments dated March 1, 1990, (2) Amendment No. 16 to License No. NPF-76, Amendment No. 6 to License No. NPF-80, and (3) the Commission's related Safety Evaluation and Environmental Assessment. All of these items are available for public inspection at the Commission's Public Document Room, 2120 L Street NW, Washington, D.C., and at the local public document rooms located at the Wharton County Junior College, J. M. Hodges Learning Center, 911 Boling Highway, Wharton, Texas 77488 and the Austin Public Library, 810 Gaudalupe Street, Austin, Texas 78701. A copy of items (2) and (3) may be obtained upon request addressed to the U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Director, Division of Reactor Projects III, IV, V and Special Projects.

Dated at Rockville, Maryland this 11th day of June 1990.

FOR THE NUCLEAR REGULATORY COMMISSION

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