MAR 3 1987

Docket No.: 50-382

Mr. J. G. Dewease
Senior Vice President - Nuclear Operations
Louisiana Power and Light Company
317 Baronne Street, Mail Unit 17
New Orleans, Louisiana 70160

Dear Mr. Dewease:

SUBJECT: ISSUANCE OF AMENDMENT NO. 16 TO FACILITY OPERATING LICENSE NO. NPF-38 FOR WATERFORD 3

The Commission has issued the enclosed Amendment No. 16 to Facility Operating License No. NPF-38 for the Waterford Steam Electric Station, Unit 3. The amendment consists of changes to the Technical Specifications in response to your application transmitted by letter dated February 12, 1987 and confirms the telephone notification given to Mr. K. Cook of Louisiana Power and Light Company on February 13, 1987, that the requested change has been granted.

The amendment changes the Appendix A Technical Specifications by revising the specification on moderator temperature coefficient to allow applicability of a special test exception while in Mode 1.

A copy of the Safety Evaluation supporting the amendment is also enclosed. Notice of Issuance and Final Determination of No Significant Hazards Consideration and Opportunity for Hearing will be included in the Commission's next bi-weekly Federal Register Notice.

Sincerely,

/S/

James H. Wilson, Project Manager
PWR Project Directorate No. 7
Division of PWR Licensing-B

Enclosures:
1. Amendment No. 16 to NPF-38
2. Safety Evaluation

cc: See next page

*Previously concurred on by:

PD7	PD7	PBRS	OGC	DIR:PD7
JWilson/tyt	*JLee	*	*	*GWKnighton
3/3/87	2/18/87	2/18/87	2/19/87	2/25/87

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

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James H. Wilson

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Division of PWR Licensing-B

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2. Safety Evaluation

cc: See next page

cc:
W. Malcolm Stevenson, Esq.
Monroe & Leman
1432 Whitney Building
New Orleans, Louisiana 70103

Mr. E. Blake
Shaw, Pittman, Potts and Trowbridge
2300 N Street, NW
Washington, D.C. 20037

Mr. Gary L. Groesch
P. O. Box 791169
New Orleans, Louisiana 70179-1169

Mr. F. J. Drummond
Project Manager - Nuclear
Louisiana Power and Light Company
317 Baronne Street
New Orleans, Louisiana 70160

Mr. K. W. Cook
Nuclear Support and Licensing Manager
Louisiana Power and Light Company
317 Baronne Street
New Orleans, Louisiana 70160

Resident Inspector/Waterford NPS
P. O. Box 822
Killona, Louisiana 70066

Mr. Ralph T. Lally
Manager of Quality Assurance
Middle South Services, Inc.
P. O. Box 61000
New Orleans, Louisiana 70161

Chairman
Louisiana Public Service Commission
One American Place, Suite 1630
Baton Rouge, Louisiana 70825-1697

Regional Administrator, Region IV
U.S. Nuclear Regulatory Commission
Office of Executive Director
for Operations
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76011

Carole H. Burstein, Esq.
445 Walnut Street
New Orleans, Louisiana 70118

Mr. Charles B. Brinkman, Manager
Washington Nuclear Operations
Combustion Engineering, Inc.
7910 Woodmont Avenue, Suite 1310
Bethesda, Maryland 20814

Mr. William H. Spell, Administrator
Nuclear Energy Division
Office of Environmental Affairs
P. O. Box 14690
Baton Rouge, Louisiana 70898

President, Police Jury
St. Charles Parrish
Hahnville, Louisiana 70057

MAR 3 198[illegible]

ISSUANCE OF AMENDMENT NO. 16 TO FACILITY OPERATING
LICENSE NO. NPF-38 FOR WATERFORD 3

DISTRIBUTION
Docket File 50-382
NRC PDR
Local PDR
PBD7 Reading
FMiraglia
JLee (5)
JWilson
Attorney, OGC - Bethesda
LHarmon
EJordan
BGrimes
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TBarnhart (4)
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OPA
RDiggs, LFMB
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

LOUISIANA POWER AND LIGHT COMPANY

DOCKET NO. 50-382

WATERFORD STEAM ELECTRIC STATION, UNIT 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 16
License No. NPF-38

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment, dated February 12, 1987, by Louisiana Power and Light Company (licensee), complies with standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the 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 amendment will not be inimical to the common defense and security or to the health and safety of the public;

   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.

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-38 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

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 this license. LP&L shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. The license amendment is effective as of February 13, 1987.

FOR THE NUCLEAR REGULATORY COMMISSION

James H. Wilson

James H. Wilson, Project Manager
PWR Project Directorate No. 7
Division of PWR Licensing-B

Attachment:
Changes to the Technical
Specifications

Date of Issuance: March 3, 1987

ATTACHMENT TO LICENSE AMENDMENT NO. 16

TO FACILITY OPERATING LICENSE NO. NPF-38

DOCKET NO. 50-382

Replace the following page of the Appendix A Technical Specification with the enclosed page.

Amendment Page
3/4 1-4

Pages 3/4 1-3 and 3/4 1-3a are reissued for pagination purposes.

REACTIVITY CONTROL SYSTEMS

SHUTDOWN MARGIN - ALL CEAS FULLY INSERTED

LIMITING CONDITION FOR OPERATION

3.1.1.2 The SHUTDOWN MARGIN shall be greater than or equal to that shown in Figure 3.1-0.

APPLICABILITY: MODE 2*#, 3, 4 and 5 with all CEAs fully inserted.

ACTION:

With the SHUTDOWN MARGIN less than that shown in Figure 3.1-0, immediately initiate and continue boration at greater than or equal to 40 gpm of a solution containing greater than or equal to 1720 ppm boron or equivalent until the required SHUTDOWN MARGIN is restored.

SURVEILLANCE REQUIREMENTS

4.1.1.2.1 With all full length CEAs fully inserted, the SHUTDOWN MARGIN shall be determined to be greater than or equal to that shown in Figure 3.1-0.

a. When in MODE 2 with k_{eff} less than 1.0, within 4 hours prior to achieving reactor criticality by verifying that the predicted critical CEA position is within the limits of Specification 3.1.3.6.

b. When in MODES 3, 4, or 5, at least once per 24 hours by consideration of the following factors:

1. Reactor Coolant System boron concentration,
2. CEA position,
3. Reactor Coolant System average temperature,
4. Fuel burnup based on gross thermal energy generation,
5. Xenon concentration,and
6. Samarium concentration.

4.1.1.2.2 The overall core reactivity balance shall be compared to predicted values to demonstrate agreement within ± 1.0% delta k/k at least once per 31 Effective Full Power Days (EFPD). This comparison shall consider at least those factors stated in Specification 4.1.1.2.1b, above. The predicted reactivity values shall be adjusted (normalized) to correspond to the actual core conditions prior to exceeding a fuel burnup of 60 EFPD after each fuel loading.

*With k_{eff} less than 1.0

#See Special Test Exception 3.10.1

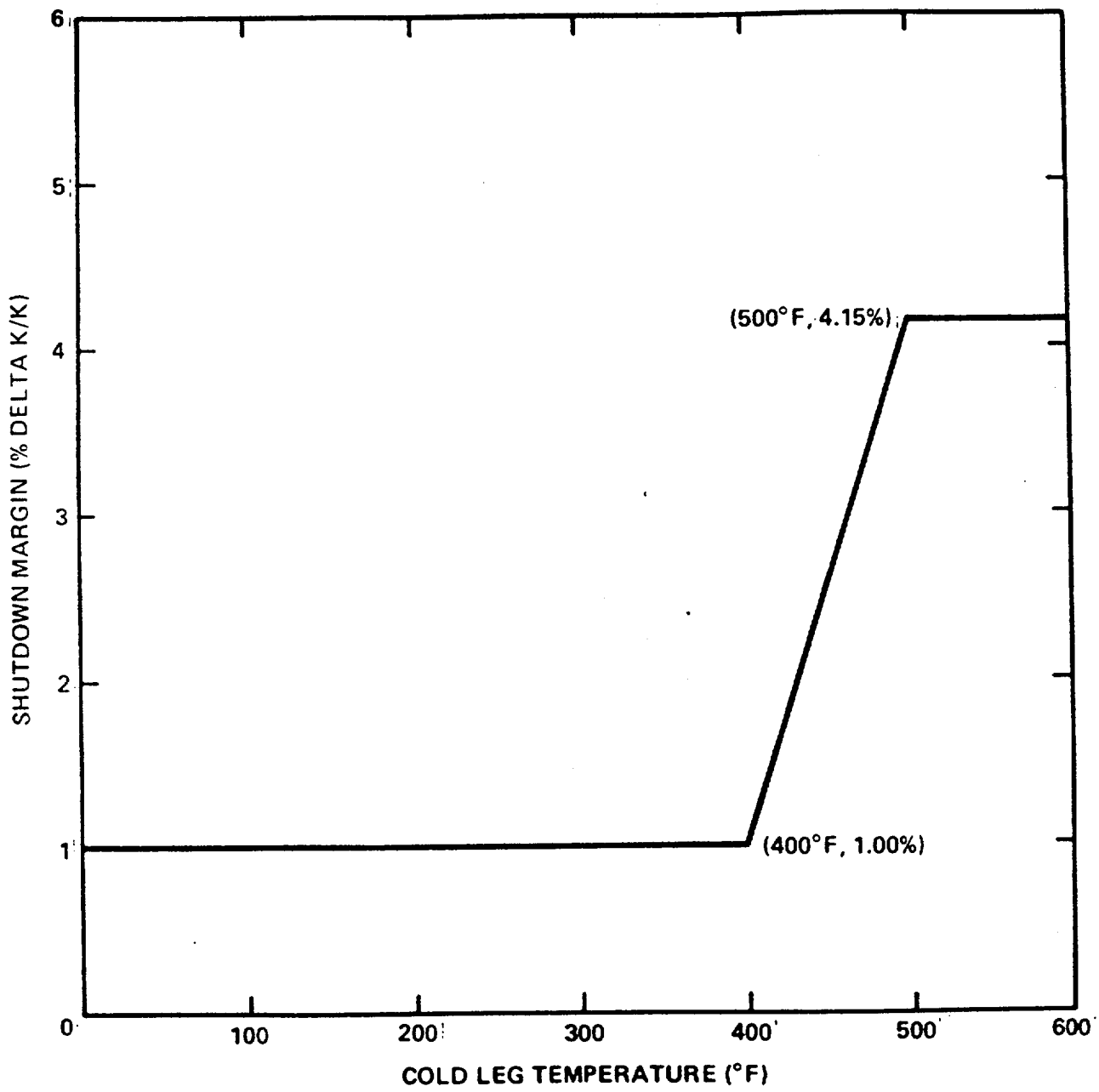

Figure 3.1-0

SHUTDOWN MARGIN AS A FUNCTION
OF COLD LEG TEMPERATURE

MODERATOR TEMPERATURE COEFFICIENT

LIMITING CONDITION FOR OPERATION

3.1.1.3 The moderator temperature coefficient (MTC) shall be:

a. Less positive than 0.5×10^{-4} delta k/k/°F whenever THERMAL POWER is $\leq$ 70% RATED THERMAL POWER, and

b. Less positive than 0.0×10^{-4} delta k/k/°F whenever THERMAL POWER is > 70% RATED THERMAL POWER, and

c. Less negative than -3.3×10^{-4} delta k/k/°F at all levels of THERMAL POWER.

APPLICABILITY: MODES 1#(1) and 2*#

ACTION:

With the moderator temperature coefficient outside any one of the above limits, be in at least HOT STANDBY within 6 hours.

SURVEILLANCE REQUIREMENTS

4.1.1.3.1 The MTC shall be determined to be within its limits by confirmatory measurements. MTC measured values shall be extrapolated and/or compensated to permit direct comparison with the above limits.

4.1.1.3.2 The MTC shall be determined at the following frequencies and THERMAL POWER conditions during each fuel cycle:

a. Prior to initial operation above 5% of RATED THERMAL POWER, after each fuel loading.

b. At greater than 15% of RATED THERMAL POWER, prior to reaching 40 EFPD core burnup.

c. At any THERMAL POWER, within 7 EFPD of reaching two-thirds of expected core burnup.

---

*With K_{eff} greater than or equal to 1.0.

#See Special Test Exception 3.10.2.

#(1) See Special Test Exception 3.10.2 applicable for Mode 1 during startup test of Cycle 2.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 16 TO FACILITY OPERATING LICENSE NO. NPF-38

LOUISIANA POWER AND LIGHT COMPANY

WATERFORD STEAM ELECTRIC STATION, UNIT 3

DOCKET NO. 50-382

1.0 INTRODUCTION

By application dated February 12, 1987, Louisiana Power and Light Company (the licensee) requested changes to the Technical Specifications (Appendix A to Facility Operating License No. NPF-38) for the Waterford Steam Electric Station, Unit 3. The proposed change would revise the specification on Moderator Temperature Coefficient (MTC) to allow applicability of a special test exception while in Mode 1.

2.0 DISCUSSION

During core physics testing associated with post refueling ascension to power, it was determined that the MTC was positive at 70% power level. This slightly exceeded the predicted value and the technical specifications for operation beyond 70% power. Corrective action involves continuing testing until the MTC is negative beyond 70% power level. The period of time necessary to bring the MTC into specification is inversely proportional to power level. In order to minimize the delay in power ascension the licensee proposes continuing the testing under the Special Test Exception permitting testing to not to exceed 85% power.

The proposed change would revise Technical Specification 3.1.1.3 so that Technical Specification 3.10.2, the Special Test Exception on group height, insertion and power distribution limits, would apply in Mode 1, that is, for power operation above 5% power. Reactor power is presently limited to 70% because, with the present fuel loading, soluble boron content, and control rod insertion limits, the MTC is projected to be more positive than the requirements of Technical Specification 3.1.1.3b. Therefore, this Special Test Exception is needed by the licensee in order to permit physics testing at 85% power. If the exception is not granted, the licensee would have to wait an extended period of time before being able to escalate to power above 70% because of the requirements imposed on the MTC (Technical Specification 3.1.1.3).

3.0 EVALUATION

The present Technical Specification 3.1.1.3 allows a maximum positive MTC of $+0.5 \times 10^{-4}$ delta k/k/°F at and below 70% power and a maximum MTC of zero above 70% power. The Technical Specification also states that the MTC shall be no more negative than -3.3×10^{-4} delta k/k/°F. This Technical Specification was approved by the staff for Cycle 2 operation and issued January 16, 1987 as Amendment No. 13 to the Waterford 3 operating license. The licensee is presently in the process of performing physics startup tests at Waterford 3 for the Cycle 2 reloaded core. In performing the MTC test at zero power, the licensee found that the MTC exceeded $+0.5 \times 10^{-4}$ delta k/k/°F. The licensee adjusted the soluble boron concentration of the core with a consequent change in the MTC to $+0.45 \times 10^{-4}$ delta k/k/°F. The licensee determined, from an extrapolation of the data, that the MTC would be slightly positive between 70% power and about 81% power, zero at about 81% power and negative for reactor power above 81% power.

This slightly positive MTC between 70% and 81% power prevents the licensee from increasing power to 85%, where additional physics testing would be conducted, without waiting for an extended period for time for additional fission products to build in. This additional operation at 70% power would allow the licensee to reduce the soluble boron concentration by about 30 ppm which would be sufficient to meet the MTC technical specification requirement. However, in order that the physics testing at 85% power may be performed now, the licensee proposes the Special Test Exception of Technical Specification 3.10.2 to apply to Mode 1 for Technical Specification 3.1.1.3.

The licensee assessed the impact of a slightly positive MTC above 70% power. The MTC was assumed to be a ramp from $+0.5 \times 10^{-4}$ delta k/k/°F at 70% power to zero at 90% power. This functional dependence of the MTC would bound the MTC values extrapolated from data between 70% and 85% power. The licensee reevaluated the transients and accidents sensitive to the MTC including the following: (1) control element assembly (CEA) withdrawals, (2) loss-of-coolant flow, (3) loss of external load, (4) turbine trip, (5) loss of feedwater, (6) CEA ejection, (7) loss of condenser vacuum, (8) loss of AC power, (9) and large and small break Loss-of-Coolant Accident (LOCAs). With an MTC within the newly analyzed ramp from 70% to 90% power, the Doppler reactivity coefficient is sufficiently negative to assure a negative prompt reactivity coefficient in the power operating range in accordance with GDC 11. The licensee states that previous analyses of these and other events evaluated remain bounding. Therefore, all applicable safety criteria are met if the Special Test Exception of Technical Specification 3.10.2 is granted for Technical Specification 3.1.1.3 for Mode 1 operation so that physics testing may be performed now at 85% power.

The staff has reviewed the licensee's request and concludes that the proposed modification of Technical Specification 3.1.1.2 to permit the Special Test Exception of Technical Specification 3.10.2 to apply to Mode 1 operation is acceptable during startup for Cycle 2. Staff approval of the request was granted to the licensee by phone on February 13, 1987.

4.0 FINAL NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

The staff has reviewed the licensee's proposed changes as they relate to the three criteria of 10 CFR 50.92.

This change is proposed to accommodate the wider range in MTC values necessary to prevent derating at the beginning of Cycle 2. The FSAR Chapter 15 events that are limiting with respect to MTC have been reviewed and found to remain valid with respect to the expected Waterford 3 operating window and the proposed change, which would allow applicability of Special Test Exception 3.10.2 while in Mode 1. Therefore, a significant increase in the probability or consequences of any accident previously evaluated will not result from implementation of the proposed change.

This revision addresses minor changes in values of core parameters as determined from measurements taken during low power physics testing. As such, no new failure or accident path is created. Therefore, this change does not create the possibility of any new or different kind of accident.

The intent of this change is to limit the potential derating of Waterford 3 while ensuring that the assumptions used in the FSAR Chapter 15 accident analyses remain valid. The accident analyses have been reviewed assuming the proposed MTC limits. This review has shown that all of the events remain bounded by the results shown in the Reload Analysis Report for Cycle 2 operations (approved by NRC letter dated January 16, 1987, to the licensee) and, consequently, comply with the applicable acceptance criteria in the Standard Review Plan. Therefore, this change will not involve a significant reduction in a margin of safety.

The staff, therefore, concludes that operation of the facility in accordance with the proposed change does not represent a significant hazards consideration.

5.0 CONTACT WITH STATE OFFICIAL

The NRC staff advised the Administrator, Nuclear Energy Division, Department of Environmental Quality, State of Louisiana of the final determination of no significant hazards consideration by phone on February 13, 1987. The State had no comments on this determination.

6.0 ENVIRONMENTAL CONSIDERATION

This amendment involves changes in the installation or use of facility components located within the restricted area. The 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. 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 this amendment.

7.0 CONCLUSION

Based upon our evaluation of the proposed change to the Waterford 3 Technical Specifications, we have concluded that: there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and such activities will be conducted in compliance with the Commission's regulations and the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public. We, therefore, conclude that the proposed change is acceptable.

Principal Contributor: D. Fieno

Dated: March 3, 1987