JAN 16 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. 13 TO FACILITY OPERATING LICENSE NO. NPF-38 FOR WATERFORD 3

The Commission has issued the enclosed Amendment No. 13 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 applications transmitted by letter dated July 15, 1986.

The amendment revises the Appendix A Technical Specifications by: revising the axial shape index allowable ranges; revising the moderator temperature coefficient allowable range; revising the part-length control element assembly insertion limits; and allowing the suspension of the part-length control element assembly insertion limits during certain startup tests.

A copy of the Safety Evaluation supporting the amendment is also enclosed.

Sincerely,

/S/

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

Enclosures:
1. Amendment No. 13 to NPF-38
2. Safety Evaluation

cc: See next page

PD7	PD7	OGC	DIR:PD7
JWilson/yt	JLee		GWKnighton
1/7/87	1/14/87	1/14/87	1/16/87

JAN 1987

ISSUANCE OF AMENDMENT NO. 13 TO FACILITY OPERATING
LICENSE NP. NPF-38 FOR WATERFORD 3

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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. 13
License No. NPF-38

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

   A. The applications for amendment, dated July 15, 1986 by Louisiana Power and Light Company (licensee), comply 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. 13, 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 the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

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

Attachment:
Changes to the Technical
Specifications

Date of Issuance: January 16, 1987

ATTACHMENT TO LICENSE AMENDMENT NO. 13

TO FACILITY OPERATING LICENSE NO. NPF-38

DOCKET NO. 50-382

Replace the following pages of the Appendix A Technical Specifications with the enclosed pages. The revised pages are identified by Amendment number and contain vertical lines indicating the area of change. Also to be replaced are the following overleaf pages to the amended pages.

Amendment Pages	Overleaf Pages
XIX	XX
3/4 1-4	3/4 1-3
3/4 1-28	3/4 1-27
3/4 1-28a	-
3/4 2-12	3/4 2-11
3/4 10-2	3/4 10-1
B 3/4 10-1	-

LIST OF FIGURES

LIST OF TABLES

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

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 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 EEPD 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.

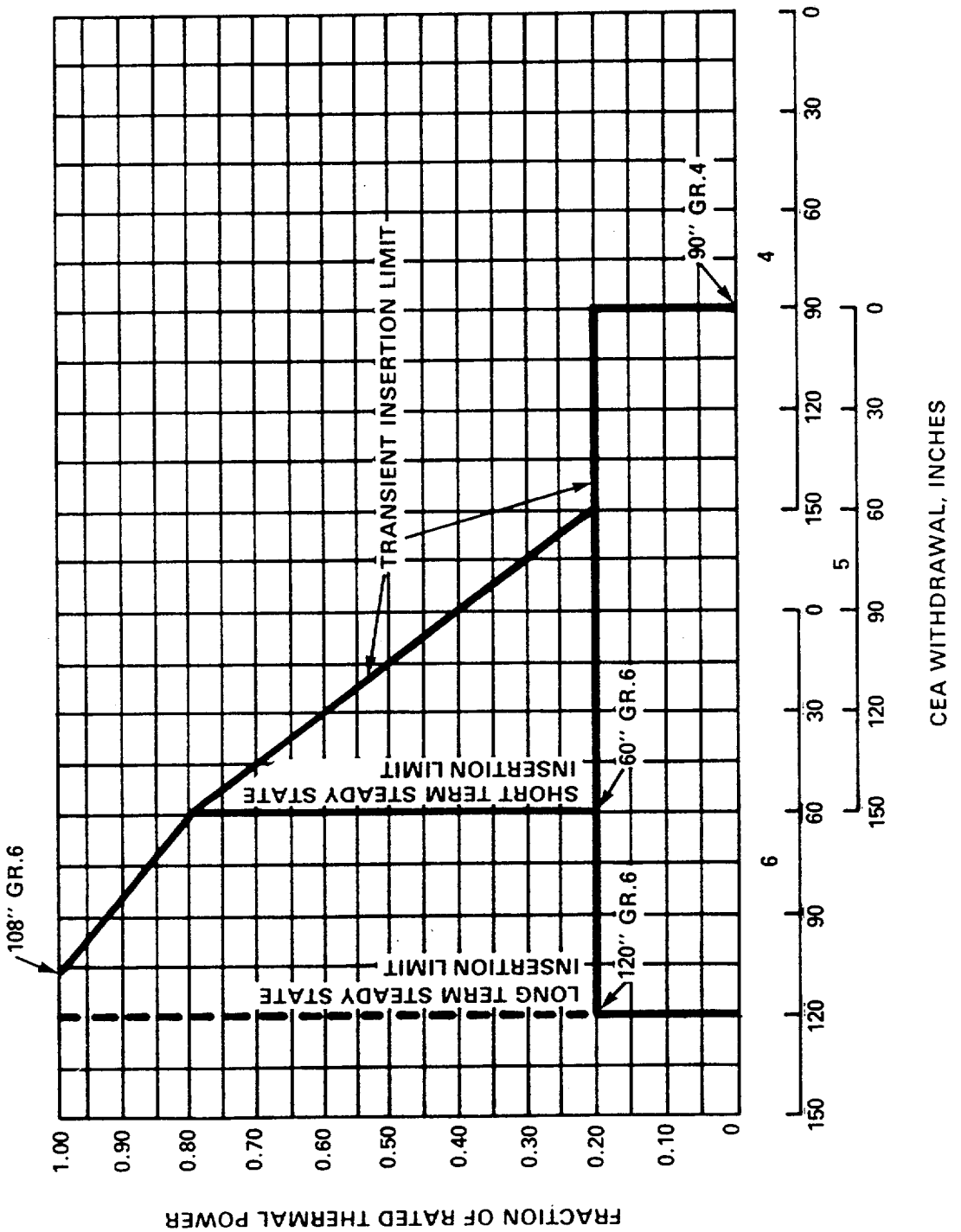

FIGURE 3.1-2
CEA INSERTION LIMITS VS THERMAL POWER

PART LENGTH CEA INSERTION LIMITS

LIMITING CONDITION FOR OPERATION

3.1.3.7 The part length CEA groups shall be limited to the insertion limits shown on Figure 3.1-3 with PLCEA insertion between the Long Term Steady State Insertion Limit and the Transient Insertion Limit restricted to:

a. $\leq$ 7 EFPD per 30 EFPD interval, and

b. $\leq$ 14 EFPD per calender year.

APPLICABILITY: MODE 1 above 20% THERMAL POWER. *

ACTION:

a. With the part length CEA groups inserted beyond the Transient Insertion Limit, except for surveillance testing pursuant to Specification 4.1.3.1.2, within two hours, either:

   1. Restore the part length CEA group to within the limits, or

   2. Reduce THERMAL POWER to less than or equal to that fraction of RATED THERMAL POWER which is allowed by the PLCEA group position using Figure 3.1-3.

b. With the part length CEA groups inserted between the Long Term Steady State Insertion Limit and the Transient Insertion Limit for intervals > 7 EFPD per 30 EFPD interval or > 14 EFPD per calendar year, either:

   1. Restore the part length group within the Long Term Steady State Insertion Limits within two hours, or

   2. Be in at least HOT STANDBY within 6 hours.

SURVEILLANCE REQUIREMENTS

4.1.3.7 The position of the part length CEA group shall be determined to be within the Transient Insertion Limit at least once per 12 hours.

*See Special Test Exception 3.10.2.

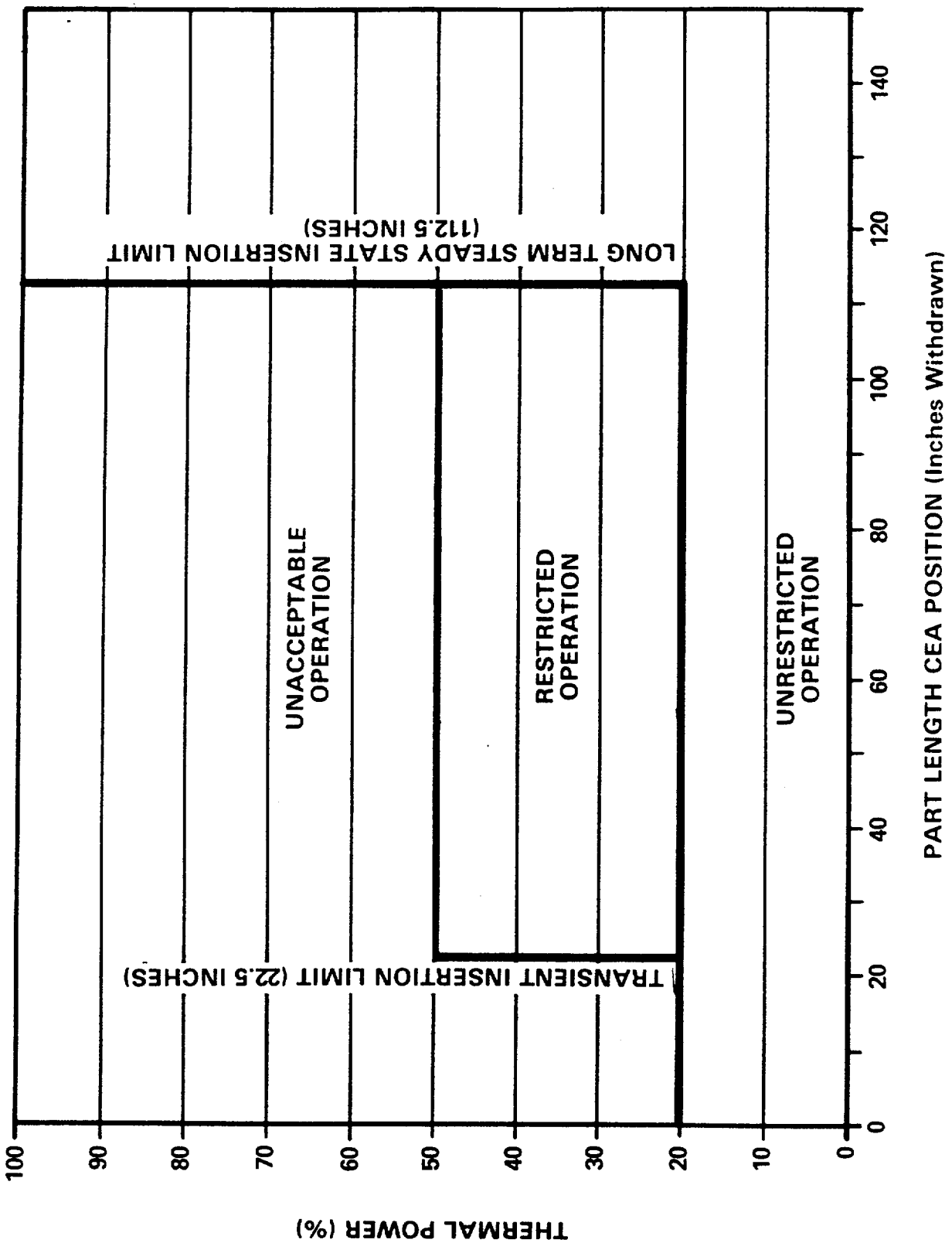

FIGURE 3.1-3 PART LENGTH CEA INSERTION LIMIT VS. THERMAL POWER

3/4.2.6 REACTOR COOLANT COLD LEG TEMPERATURE

LIMITING CONDITION FOR OPERATION

3.2.6 The reactor coolant cold leg temperature (T_c) shall be maintained between 544°F and 558°F.*

APPLICABILITY: MODE 1 above 30% of RATED THERMAL POWER.

ACTION:

With the reactor coolant cold leg temperature exceeding its limit, restore the temperature to within its limit within 2 hours or reduce THERMAL POWER to less than 30% of RATED THERMAL POWER within the next 4 hours.

SURVEILLANCE REQUIREMENTS

4.2.6 The reactor coolant cold leg temperature shall be determined to be within its limit at least once per 12 hours.

*Following a reactor power cutback in which (1) Regulating Groups 5 and/or 6 are dropped or (2) Regulating Groups 5 and/or 6 are dropped and the remaining Regulating Groups (Groups 1, 2, 3, and 4) are sequentially inserted, the upper limit on T_c may increase to 568°F for up to 30 minutes.

3/4.2.7 AXIAL SHAPE INDEX

LIMITING CONDITION FOR OPERATION

3.2.7 The AXIAL SHAPE INDEX (ASI) shall be maintained within the following limits:

a. COLSS OPERABLE
$-0.23 \leq ASI \leq +0.28$

b. COLSS OUT OF SERVICE (CPC)
$-0.17 \leq ASI \leq +0.22$

APPLICABILITY: MODE 1 above 20% of RATED THERMAL POWER.*

ACTION:

With the AXIAL SHAPE INDEX outside its above limits, restore the AXIAL SHAPE INDEX to within its limit within 2 hours or reduce THERMAL POWER to less than 20% of RATED THERMAL POWER within the next 4 hours.

SURVEILLANCE REQUIREMENTS

4.2.7 The AXIAL SHAPE INDEX shall be determined to be within its limit at least once per 12 hours using the COLSS or any OPERABLE Core Protection Calculator channel.

*See Special Test Exception 3.10.2.

3/4.10 SPECIAL TEST EXCEPTIONS

3/4.10.1 SHUTDOWN MARGIN

LIMITING CONDITION FOR OPERATION

3.10.1 The SHUTDOWN MARGIN requirement of Specification 3.1.1.1 or 3.1.1.2 may be suspended for measurement of CEA worth and SHUTDOWN MARGIN provided reactivity equivalent to at least the highest estimated CEA worth is available for trip insertion from OPERABLE CEA(s).

APPLICABILITY: MODES 2 AND 3*.

ACTION:

a. With any full-length CEA not fully inserted and with less than the above reactivity equivalent available for trip insertion, 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 its equivalent until the SHUTDOWN MARGIN required by Specification 3.1.1.1 is restored.

b. With all full-length CEAs fully inserted and the reactor subcritical by less than the above reactivity equivalent, 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 its equivalent until the SHUTDOWN MARGIN required by Specification 3.1.1.2 is restored.

SURVEILLANCE REQUIREMENTS

4.10.1.1 The position of each full-length and part-length CEA required either partially or fully withdrawn shall be determined at least once per 2 hours.

4.10.1.2 Each CEA not fully inserted shall be demonstrated capable of full insertion when tripped from at least the 50% withdrawn position within 7 days prior to reducing the SHUTDOWN MARGIN to less than the limits of Specification 3.1.1.1.

*Operation in MODE 3 shall be limited to 6 consecutive hours.

SPECIAL TEST EXCEPTIONS

3/4.10.2 MODERATOR TEMPERATURE COEFFICIENT, GROUP HEIGHT, INSERTION, AND POWER DISTRIBUTION LIMITS

LIMITING CONDITION FOR OPERATION

3.10.2 The moderator temperature coefficient, group height, insertion, and power distribution limits of Specifications 3.1.1.3, 3.1.3.1, 3.1.3.5, 3.1.3.6, 3.1.3.7, 3.2.2, 3.2.3, 3.2.7, and the Minimum Channels OPERABLE requirement of Functional Unit 15 of Table 3.3-1 may be suspended during the performance of PHYSICS TESTS provided:

a. The THERMAL POWER is restricted to the test power plateau which shall not exceed 85% of RATED THERMAL POWER, and

b. The limits of Specification 3.2.1 are maintained and determined as specified in Specification 4.10.2.2 below.

APPLICABILITY: MODES 1 and 2.

ACTION:

With any of the limits of Specification 3.2.1 being exceeded while the requirements of Specifications 3.1.1.3, 3.1.3.1, 3.1.3.5, 3.1.3.6, 3.1.3.7, 3.2.2, 3.2.3, 3.2.7, and the Minimum Channels OPERABLE requirement of Functional Unit 15 of Table 3.3-1 are suspended, either:

a. Reduce THERMAL POWER sufficiently to satisfy the requirements of Specification 3.2.1, or

b. Be in HOT STANDBY within 6 hours.

SURVEILLANCE REQUIREMENTS

4.10.2.1 The THERMAL POWER shall be determined at least once per hour during PHYSICS TESTS in which the requirements of Specifications 3.1.1.3, 3.1.3.1, 3.1.3.5, 3.1.3.6, 3.1.3.7, 3.2.2, 3.2.3, 3.2.7, or the Minimum Channels OPERABLE requirement of Functional Unit 15 of Table 3.3-1 are suspended and shall be verified to be within the test power plateau.

4.10.2.2 The linear heat rate shall be determined to be within the limits of Specification 3.2.1 by monitoring it continuously with the Incore Detector Monitoring System pursuant to the requirements of Specifications 4.2.1.2 and 3.3.3.2 during PHYSICS TESTS above 5% of RATED THERMAL POWER in which the requirements of Specifications 3.1.1.3, 3.1.3.1, 3.1.3.5, 3.1.3.6, 3.1.3.7, 3.2.2, 3.2.3, 3.2.7, or the Minimum Channels OPERABLE requirement of Functional Unit 15 of Table 3.3-1 are suspended.

3/4.10 SPECIAL TEST EXCEPTIONS

BASES

3/4.10.1 SHUTDOWN MARGIN

This special test exception provides that a minimum amount of CEA worth is immediately available for reactivity control when tests are performed for CEAs worth measurement. This special test exception is required to permit the periodic verification of the actual versus predicted core reactivity condition occurring as a result of fuel burnup or fuel cycling operations.

3/4.10.2 MTC, GROUP HEIGHT, INSERTION, AND POWER DISTRIBUTION LIMITS

This special test exception permits individual CEAs to be positioned outside of their normal group heights and insertion limits during the performance of such PHYSICS TESTS as those required to (1) measure CEA worth, (2) determine core characteristics and (3) calibrate the reactor protection system.

3/4.10.3 REACTOR COOLANT LOOPS

This special test exception permits reactor criticality under no flow conditions and is required to perform certain startup and PHYSICS TESTS while at low THERMAL POWER levels.

3/4.10.4 CENTER CEA MISALIGNMENT

This special test exception permits the center CEA to be misaligned during PHYSICS TESTS required to determine the isothermal temperature coefficient and power coefficient.

3/4.10.5 NATURAL CIRCULATION TESTING

This special test exception permits all reactor coolant pumps to be secured during natural circulation testing and operator training for periods in excess of the 1 hour allowed by Specification 3.4.1.2.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 13 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 applications dated July 15, 1986, 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 changes would: (1) revise the axial shape index allowable ranges; (2) revise the moderator temperature coefficient allowable range; (3) revise the part-length control element assembly insertion limits; and (4) allow the suspension of the part-length control element assembly insertion limits during certain startup tests.

2.0 DISCUSSION

The proposed changes to the technical specifications requested by the licensee are in four areas, as described below.

2.1 Axial Shape Index Allowable Ranges (NPF-38-24)

The proposed change would revise the Axial Shape Index (ASI) allowable ranges given in Technical Specification 3.2.7.

2.2 Moderator Temperature Coefficient Allowable Range (NPF-38-25)

The proposed change would revise the moderator temperature coefficient (MTC) allowable range given in Technical Specification 3.1.1.3 by extending the most negative limit to -3.3×10^{-4} delta k/k/°F at all levels of thermal power and by extending the most positive limit to $+0.5 \times 10^{-4}$ delta k/k/°F at or below 70% thermal power.

2.3 Part-Length Control Element Assembly Insertion Limits (NPF-38-26)

The proposed change would revise the Part-Length Control Element Assembly (PLCEA) insertion limits in Technical Specification 3.1.3.7 and its associated surveillance requirements.

2.4 PLCEA Insertion Limits During Starting Testing (NPF-38-27)

The proposed change would modify Technical Specification 3.10.2 to allow the suspension of the part-length control element assembly insertion limits during certain startup tests.

3.0 EVALUATION

The proposed changes to the Technical Specifications requested by the licensee and described in four areas above, are evaluated below.

3.1 Axial Shape Index Allowable Ranges (NPF-38-24)

In order to ensure that the peak linear heat rate and departure from nucleate boiling ratio remain within the safety limits during anticipated operational occurrences and to ensure that the actual value of ASI is maintained within the range of values used in the safety analyses, Technical Specification 3.2.7 requires the ASI to be maintained between -0.23 and +0.50 when the Core Operating Limit Supervisory System (COLSS) is operable and between -0.19 and +0.24 when COLSS is out-of-service and the Core Protection Calculator (CPC) is used for monitoring limiting conditions of operation. The proposed change would revise the ASI allowable band to -0.23 and +0.28 when COLSS is operable and to -0.17 and +0.22 when COLSS is out-of-service.

Because of the higher radial power peaking factors anticipated for Cycle 2 caused by increased fuel enrichments and changes in the fuel reshuffling scheme, additional thermal margin is needed to offset some of the margin losses associated with these higher peaking factors. By narrowing the ASI band, the modeling uncertainties associated with COLSS and CPC calculations are reduced because of the less extreme axial power shapes. This reduction in uncertainties leads to an increase in thermal margin which is sufficient to compensate for the peaking factor margin losses.

Since the proposed changes to the ASI band are in a more restrictive direction and have been properly accounted for in the plant safety analyses using approved calculational methods, the changes are acceptable.

3.2 Moderator Temperature Coefficient Allowable Range (NPF-38-25)

The limitation on MTC specified in Technical Specification 3.1.1.3 is provided to ensure that the MTC assumptions used in the plant safety analyses remain valid throughout the fuel cycle. The MTC varies slowly as a function of core burnup, due principally to the reduction in reactor coolant boron concentration with fuel burnup. It is most positive at the beginning of cycle and becomes more negative with increasing burnup and decreasing boron concentration.

The proposed change would lower the allowable MTC negative limit to -3.3×10^{-4} delta k/k/°F from -2.5×10^{-4} delta k/k/°F at all levels of thermal power. This change is required to accommodate the higher fuel burnup at the end of the next fuel cycle as well as anticipated future cycles. A negative

MTC has an adverse effect on events which result in cooldown of the reactor coolant system since it results in a positive reactivity addition. Therefore, as part of the Cycle 2 reload analysis, the Waterford 3 FSAR Chapter 15 accident analyses were reviewed to determine if any reanalyses would be required due to the more negative MTC limit. The FSAR cooldown events adversely affected by a negative MTC were the Chemical Volume Control System (CVCS) malfunction (inadvertent boron dilution), steam line break, inadvertent opening of a steam generator atmospheric dump valve, increased main steam flow, and part-length or full-length control element assembly (CEA) drop events. These were all analyzed in the FSAR with a negative MTC of at least -3.3×10^{-4} delta k/k/°F and, therefore, remain bounding. Of these events, the steam line break and full length CEA drop were reanalyzed for the Cycle 2 reload due to changes in core characteristics and reactor trip assumptions. The reanalyses were performed assuming a negative MTC of -3.3×10^{-4} delta k/k/°F and demonstrate continued compliance to the applicable NRC acceptance criteria in Section 15 of the Standard Review Plan for the Review of Safety Analysis Reports of Nuclear Power Plants (NUREG-0800).

The proposed change will also increase the allowable MTC positive limit at or below 70% thermal power to $+0.5 \times 10^{-4}$ delta k/k/°F from $+0.2 \times 10^{-4}$ delta k/k/°F. The current positive limit of 0.0×10^{-4} delta k/k/°F above 70% thermal power is not modified by this change. This change is required to accommodate the higher boron concentration in Cycle 2. A positive MTC has an adverse effect on those events which involve an increase in moderator temperature since it results in a positive reactivity addition. These heatup events are caused by a decrease in heat removal by the secondary system, a decrease in reactor coolant flow rate, or reactivity and power distribution anomalies. In addition, it may also affect the reactivity insertion as a function of moderator density input to the LOCA evaluation. Except for the beginning-of-cycle CEA ejection event initiated from zero power, all other heatup events adversely affected by a positive MTC were analyzed in the FSAR assuming a value of $+0.5 \times 10^{-4}$ delta k/k/°F and, therefore, remain bounding. In response to the staff's concerns about the CEA ejection event, the licensee stated that the ejected CEA worth for the zero power case in the FSAR analysis was 0.80% delta k/k compared to 0.49% delta k/k for Cycle 2. This difference more than compensates for any possible additional reactivity added by the change in MTC from the Cycle 1 value to the more positive Cycle 2 value below 70% power. The staff agrees and concurs that the Cycle 2 CEA ejection results are bounded by those shown in the FSAR. Reanalysis of other events for Cycle 2 which are adversely affected by a positive MTC, such as the single reactor coolant pump sheared shaft, total loss of forced reactor coolant flow, and CEA withdrawal from subcritical and low power conditions, were performed assuming a positive MTC of $+0.5 \times 10^{-4}$ delta k/k/°F and demonstrate continued compliance to the applicable NRC acceptance criteria in Section 15 of the Standard Review Plan.

The small break LOCA analysis presented in the FSAR used the same full power MTC value that was used for Cycle 2. In response to the staff's concern about the more positive allowable MTC value for Cycle 2, the licensee indicated that the reactor power must be less than 70% for the MTC to be $+0.5 \times 10^{-4}$ delta

k/k°F. The small break Loss of Coolant Accident (LOCA) results are more sensitive to initial power (decay heat level) than to the MTC and the short duration power change that a positive value causes before a reactor trip occurs. The reduction of the initial power more than compensates for a more positive MTC. In addition, the very conservative treatment of the moderator reactivity feedback characteristics assure that the small break LOCA analysis presented in the FSAR is bounding for Cycle 2. The staff concurs with the above conclusions and finds, therefore, that the effect of the more positive MTC limit on small break LOCA results is acceptable.

3.3 Part-Length Control Element Assembly Insertion Limits (NPF-38-26)

The PLCEAs are provided to help control the core power distribution, including the suppression of xenon induced axial power oscillations. Each PLCEA has three distinct axial sections: the lower 50% is Inconel; the next 40% consists of a follower section filled with water; the upper 10% consists of boron carbide (similar to a full-length CEA).

Technical Specification 3.1.3.7 imposes limits on the allowable position of PLCEAs and on the allowable burnup interval during which the PLCEA may remain within allowable position range during Modes 1 and 2. The Specification is intended to eliminate the potential for unexpected reactivity additions due to a PLCEA drop, prevent undesirable perturbations on the axial burnup distribution due to PLCEA insertion, and prevent high axial power peaking due to movement of the PLCEAs. When the PLCEAs are withdrawn between 0 and 17 inches, the highly absorbing boron carbide section remains partially within the active core and may create undesirable perturbations on the axial burnup distribution. Therefore, the PLCEAs are currently limited to 0 to 17 inches withdrawn for a maximum period of 7 Effective Full Power Days (EFPD) out of any 30 EFPD. For PLCEAS withdrawn more than 17 inches, the boron carbide section would be above the active core and any withdrawal position is allowed without restriction.

The proposed change adds Figure 3.1-3 which allows a maximum PLCEA insertion of 25% (112.5 inches withdrawn) during long term steady state operation above 20% power and allows a maximum transient PLCEA insertion of 85% (22.5 inches withdrawn) between 20% and 50% power for no longer than 7 EFPD out of any 30 EFPD period or 14 EFPD per calendar year. Since PLCEA insertion below 20% power has a negligible effect on axial burnup distribution as well as on axial power peaking, any PLCEA insertion below 20% power is allowed. The proposed change, therefore, would impose more restrictive limits on allowable PLCEA insertion limits than do the current Technical Specifications above 20% of thermal power.

These more restrictive PLCEA insertion limits make the consequences of anticipated operational occurrences such as a PLCEA drop less severe than previously analyzed when any pre-drop position was allowable. These more restrictive limits also provide additional assurance that adverse axial shapes and rapid local power changes which affect radial power peaking factors and DNB considerations do not occur as a result of the PLCEAs being positioned in the same axial segment of fuel assemblies for an extended period of time.

Therefore, since the proposed change imposes more restrictive limits as well as surveillance requirements to ensure adherence to these limits, and results in improvements in the potential consequences of related anticipated operational occurrences, the staff finds it acceptable.

3.4 PLCEA Insertion Limits During Startup Testing (NPF-38-27)

In order to perform certain startup tests such as the verification of radial peaking factors and the measurement of control element assembly (CEA) worths, it is necessary to insert the PLCEAs beyond the insertion limits specified in Technical Specification 3.1.3.7. This is similar to the currently allowed suspension of the insertion limits for full-length CEAs during these startup tests for Waterford and other Combustion Engineering (CE) plants. In addition, the linear heat rate is required to be monitored continuously during these tests, which are relatively short in duration, to assure that the operating safety limits are maintained. Therefore, the staff concludes that this test exception on PLCEA insertion limits is acceptable.

4.0 CONTACT WITH STATE OFFICIAL

The NRC staff has advised the Administrator, Nuclear Energy Division, Department of Environmental Quality, State of Louisiana of the proposed determination of no significant hazards consideration. No comments were received.

5.0 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 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 proposed findings that the amendment involves no significant hazards consideration, and there has been no public comment on such findings. 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.

6.0 CONCLUSION

Based upon our evaluation of the proposed changes 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 changes are acceptable, and are hereby incorporated into the Waterford 3 Technical Specifications.

Dated: January 16, 1987

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