December 23, 1986

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. 9 to Facility Operating License No. NPF-38 for Waterford 3

The Commission has issued the enclosed Amendment No. 9 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 letters dated September 10, and October 1, 1986, as supplemented by letter dated October 6, 1986.

The amendment revises the Appendix A Technical Specifications by redefining the responsibilities to be met by senior reactor operators during any core alterations and revising the boron dilution requirements while in Modes 5 and 6.

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. 9 to NPF-38
2. Safety Evaluation

cc: See next page

PD7	PD7	OGC	DIR:PD7
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12/15/86	12/15/86	12/17/86	12/19/86

December 23, 1986

ISSUANCE OF AMENDMENT NO. 9 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. 9
License No. NPF-38

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

   A. The applications for amendment, dated September 10 and October 1, 1986, as supplemented by letter dated October 6, 1986 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. 9, 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

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

Attachment:
Changes to the Technical
Specifications

Date of Issuance: December 23, 1986

ATTACHMENT TO LICENSE AMENDMENT NO. 9

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
XX	XIX
XXI	-
XXII	-
3/4 1-15	-
3/4 1-16	-
3/4 1-17	-
3/4 1-17a	-
3/4 1-17b	-
3/4 1-17c	-
3/4 1-17d	3/4 1-18
B 3/4 1-3	B 3/4 1-4
6-1	6-2

LIST OF FIGURES

FIGURE		PAGE
3.1-1	MINIMUM BORIC ACID STORAGE TANK VOLUME AND TEMPERATURE AS A FUNCTION OF STORED BORIC ACID CONCENTRATION.....	3/4 1-13
3.1-2	CEA INSERTION LIMITS VS THERMAL POWER.....	3/4 1-27
3.2-1	ALLOWABLE PEAK LINEAR HEAT RATE VS BURNUP.....	3/4 2-2
3.2-2	DNBR MARGIN OPERATING LIMIT BASED ON COLSS.....	3/4 2-8
3.2-3	DNBR MARGIN OPERATING LIMIT BASED ON CORE PROTECTION CALCULATORS (COLSS OUT OF SERVICE).....	3/4 2-9
3.4-1	DOSE EQUIVALENT I-131 PRIMARY COOLANT SPECIFIC ACTIVITY LIMIT VERSUS PERCENT OF RATED THERMAL POWER WITH THE PRIMARY COOLANT SPECIFIC ACTIVITY >1.0 µCi/GRAM DOSE EQUIVALENT I-131.....	3/4 4-27
3.4-2	REACTOR COOLANT SYSTEM PRESSURE/TEMPERATURE LIMITATIONS FOR 0-8 EFFECTIVE FULL POWER YEARS (HEATUP).....	3/4 4-30
3.4-3	REACTOR COOLANT SYSTEM PRESSURE/TEMPERATURE LIMITATIONS FOR 0-8 EFFECTIVE FULL POWER YEARS (COOLDOWN).....	3/4 4-31
3.6-1	CONTAINMENT PRESSURE VS TEMPERATURE	3/4 6-12
4.7-1	SAMPLING PLAN FOR SNUBBER FUNCTIONAL TEST.....	3/4 7-26
5.1-1	EXCLUSION AREA.....	5-2
5.1-2	LOW POPULATION ZONE.....	5-3
5.1-3	SITE BOUNDARY FOR RADIOACTIVE GASEOUS AND LIQUID EFFLUENTS.....	5-4
6.2-1	OFFSITE ORGANIZATION FOR MANAGEMENT AND TECHNICAL SUPPORT.....	6-3
6.2-2	PLANT OPERATIONS ORGANIZATION.....	6-4

LIST OF TABLES

TABLE		PAGE
1.1	FREQUENCY NOTATION	1-9
1.2	OPERATIONAL MODES	1-10
2.2-1	REACTOR PROTECTIVE INSTRUMENTATION TRIP SETPOINT LIMITS	2-3
2.2-2	CORE PROTECTION CALCULATOR ADDRESSABLE CONSTANTS	2-5
	MONITORING FREQUENCIES FOR BORON DILUTION DETECTION	
3.1-1	$K_{eff} > 0.98$	3/4 1-17
3.1-2	$0.98 \geq K_{eff} > 0.97$	3/4 1-17a
3.1-3	$0.97 \geq K_{eff} > 0.96$	3/4 1-17b
3.1-4	$0.96 \geq K_{eff} > 0.95$	3/4 1-17c
3.1-5	$K_{eff} \leq 0.95$	3/4 1-17d
3.3-1	REACTOR PROTECTIVE INSTRUMENTATION	3/4 3-3
3.3-2	REACTOR PROTECTIVE INSTRUMENTATION RESPONSE TIMES	3/4 3-8
4.3-1	REACTOR PROTECTIVE INSTRUMENTATION SURVEILLANCE REQUIREMENTS	3/4 3-10
3.3-3	ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION	3/4 3-14
3.3-4	ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP VALUES	3/4 3-19
3.3-5	ENGINEERED SAFETY FEATURES RESPONSE TIMES	3/4 3-22
4.3-2	ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS	3/4 3-25
3.3-6	RADIATION MONITORING INSTRUMENTATION	3/4 3-29
4.3-3	RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS	3/4 3-32
3.3-7	SEISMIC MONITORING INSTRUMENTATION	3/4 3-36
4.3-4	SEISMIC MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS	3/4 3-37
3.3-8	METEOROLOGICAL MONITORING INSTRUMENTATION	3/4 3-39

LIST OF TABLES (Continued)

TABLE		PAGE
4.3-5	METEOROLOGICAL MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS	3/4 3-40
3.3-9	REMOTE SHUTDOWN INSTRUMENTATION	3/4 3-42
4.3-6	REMOTE SHUTDOWN INSTRUMENTATION SURVEILLANCE REQUIREMENTS	3/4 3-43
3.3-10	ACCIDENT MONITORING INSTRUMENTATION	3/4 3-45
4.3-7	ACCIDENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS	3/4 3-46
3.3-11	FIRE DETECTION INSTRUMENTS	3/4 3-51
3.3-12	RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION	3/4 3-56
4.3-8	RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS	3/4 3-58
3.3-13	RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION	3/4 3-61
4.3-9	RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS	3/4 3-65
4.4-1	MINIMUM NUMBER OF STEAM GENERATORS TO BE INSPECTED DURING INSERVICE INSPECTION	3/4 4-15
4.4-2	STEAM GENERATOR TUBE INSPECTION	3/4 4-16
3.4-1	REACTOR COOLANT SYSTEM PRESSURE ISOLATION VALVES	3/4 4-20
3.4-2	REACTOR COOLANT SYSTEM CHEMISTRY	3/4 4-22
4.4-3	REACTOR COOLANT SYSTEM CHEMISTRY LIMITS SURVEILLANCE REQUIREMENTS	3/4 4-23
4.4-4	PRIMARY COOLANT SPECIFIC ACTIVITY SAMPLE AND ANALYSIS PROGRAM	3/4 4-26
4.4-5	REACTOR VESSEL MATERIAL SURVEILLANCE PROGRAM - WITHDRAWAL SCHEDULE	3/4 4-32
3.6-1	SECONDARY CONTAINMENT BYPASS LEAKAGE PATHS	3/4 6-5
3.6-2	CONTAINMENT ISOLATION VALVES	3/4 6-21

LIST OF TABLES (Continued)

TABLE		PAGE
3.7-1	STEAM LINE SAFETY VALVES PER LOOP	3/4 7-2
3.7-2	MAXIMUM ALLOWABLE LINEAR POWER LEVEL - HIGH TRIP SETPOINT WITH INOPERABLE STEAM LINE SAFETY VALVES DURING OPERATION WITH BOTH STEAM GENERATORS	3/4 7-3
4.7-1	SECONDARY COOLANT SYSTEM SPECIFIC ACTIVITY SAMPLE AND ANALYSIS PROGRAM	3/4 7-8
3.7-3	ULTIMATE HEAT SINK MINIMUM FAN REQUIREMENTS	3/4 7-14
3.7-4	FIRE HOSE STATIONS	3/4 7-37
3.7-5	YARD FIRE HYDRANTS AND ASSOCIATED HYDRANT HOSE HOUSES	3/4 7-40
4.8-1	DIESEL GENERATOR TEST SCHEDULE	3/4 8-7
4.8-2	BATTERY SURVEILLANCE REQUIREMENTS	3/4 8-11
3.8-1	CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES	3/4 8-18
3.8-2	MOTOR-OPERATED VALVES THERMAL OVERLOAD PROTECTION AND/OR BYPASS DEVICES	3/4 8-53
4.11-1	RADIOACTIVE LIQUID WASTE SAMPLING AND ANALYSIS PROGRAM	3/4 11-2
4.11-2	RADIOACTIVE GASEOUS WASTE SAMPLING AND ANALYSIS PROGRAM	3/4 11-10
3.12-1	RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM	3/4 12-3
3.12-2	REPORTING LEVELS FOR RADIOACTIVITY CONCENTRATIONS IN ENVIRONMENTAL SAMPLES	3/4 12-9
4.12-1	DETECTION CAPABILITIES FOR ENVIRONMENTAL SAMPLE ANALYSIS	3/4 12-10

BORON DILUTION

LIMITING CONDITION FOR OPERATION

3.1.2.9 Boron concentration shall be verified consistent with SHUTDOWN MARGIN requirements of Specifications 3.1.1.1, 3.1.1.2, and 3.9.1. Boron dilution events shall be precluded by:

a. Either two boron dilution alarms (startup channel high neutron flux) shall be OPERABLE with the alarms set in accordance with Specification 4.1.2.9.5 or the primary makeup water flow path to the Reactor Coolant System shall be isolated, and

b. 1. When in Mode 5 with reactor coolant loops not filled and $0.98 \geq K_{eff} \geq 0.96$ isolate and remove power to at least two charging pumps; or

2. When in Mode 5 with reactor coolant loops not filled and $0.96 \geq K_{eff} \geq 0.94$ isolate and remove power to at least one charging pump; or

3. When in Mode 5 with reactor coolant loops not filled and three charging pumps are operable, maintain $K_{eff} < 0.94$; and

c. When in Mode 6, isolate and remove power to at least two charging pumps.

APPLICABILITY: MODES 3, 4, 5, and 6.

ACTION:

a. With the boron concentration not consistent with required SHUTDOWN MARGIN, initiate emergency boration.

b. With one boron dilution alarm inoperable and the primary makeup water flow path to the Reactor Coolant System not isolated, determine Reactor Coolant System boron concentration within 1 hour and at least at the monitoring frequency specified in Tables 3.1-1 through 3.1-5.

c. With both boron dilution alarms inoperable and the primary makeup water flow path to the Reactor Coolant System not isolated, determine the Reactor Coolant System boron concentration by two independent means within 1 hour and at least at the monitoring frequency specified in Tables 3.1-1 through 3.1-5; otherwise, immediately suspend all operations involving positive reactivity changes or CORE ALTERATIONS (if applicable).

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

d. With the requirements of Specifications 3.1.2.9b and 3.1.2.9c not satisfied, immediately remove power from charging pumps to comply with the above requirement or isolate the primary makeup water flow path to the Reactor Coolant System.

e. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.1.2.9.1 The provisions of Specification 4.0.4 are not applicable for entry into MODE 3 from MODE 2.

4.1.2.9.2 Each required boron dilution alarm shall be demonstrated OPERABLE by the performance of a CHANNEL CHECK at least once per 12 hours, a CHANNEL FUNCTIONAL TEST at least once per 31 days, and a CHANNEL CALIBRATION at least once per 18 months.

4.1.2.9.3 The required primary makeup water flow path to the Reactor Coolant System shall be verified to be isolated by either locked closed manual valves, deactivated automatic valves secured in the isolation position, or by power being removed from all charging pumps, at least once per 24 hours.

4.1.2.9.4 The requirements of Specification 3.1.2.9b and 3.1.2.9c shall be verified at least once per 24 hours when in Mode 5 with the reactor coolant loops not filled or when in Mode 6.

4.1.2.9.5 Each required boron dilution alarm setpoint shall be adjusted to less than or equal to twice (2x) the existing neutron flux (cps) at the following frequencies:

a. At least once per 5 hours if the reactor has been shut down less than 25 hours;

b. At least once per 24 hours if the reactor has been shut down greater than or equal to 25 hours but less than 7 days;

c. At least once per 7 days if the reactor has been shut down greater than or equal to 7 days.

TABLE 3.1-1

REQUIRED MONITORING FREQUENCIES FOR BACKUP BORON DILUTION DETECTION AS A FUNCTION OF OPERATING CHARGING PUMPS AND PLANT OPERATIONAL MODES FOR K_{eff} GREATER-THAN 0.98

K_{eff} >0.98

OPERATIONAL MODE	Number of Operating Charging Pumps* 0	1	2	3
3	12 hours	0.75 hours	Operation not allowed**	
4	12 hours	0.75 hours	Operation not allowed**	
5 RCS filled	8 hours	0.75 hours	Operation not allowed**	
5 RCS partially drained	8 hours	Operation not allowed**		
6	Operation not allowed**			

*Charging pump OPERABILITY for any period of time shall constitute OPERABILITY for the entire monitoring frequency.

**The required charging pumps shall be verified to be inoperable by racking out their motor circuit breakers.

TABLE 3.1-2

REQUIRED MONITORING FREQUENCIES FOR BACKUP BORON DILUTION DETECTION AS A FUNCTION OF OPERATING CHARGING PUMPS AND PLANT OPERATIONAL MODES FOR K_{eff} GREATER THAN 0.97 AND LESS THAN OR EQUAL TO 0.98

$0.98 \geq K_{eff} > 0.97$

OPERATIONAL MODE	Number of Operating Charging Pumps*			
	0	1	2	3
3	12 hours	1.5 hours	0.75 hours	Operation not allowed**
4	12 hours	2.0 hours	0.75 hours	0.5 hours
5 RCS filled	8 hours	2.0 hours	0.75 hours	0.5 hours
5 RCS partially drained	8 hours	Operation not allowed**		
6	Operation not allowed**			

*Charging pump OPERABILITY for any period of time shall constitute OPERABILITY for the entire monitoring frequency.

**The required charging pumps shall be verified to be inoperable by racking out their motor circuit breakers.

TABLE 3.1-3

REQUIRED MONITORING FREQUENCIES FOR BACKUP BORON DILUTION DETECTION AS A FUNCTION OF OPERATING CHARGING PUMPS AND PLANT OPERATIONAL MODES FOR K_{eff} GREATER THAN 0.96 AND LESS THAN OR EQUAL TO 0.97

$0.97 \geq K_{eff} > 0.96$

OPERATIONAL MODE	Number of Operating Charging Pumps*			
	0	1	2	3
3	12 hours	2.5 hours	1.25 hours	0.75 hours
4	12 hours	3.0 hours	1.25 hours	0.75 hours
5 RCS filled	8 hours	3.0 hours	1.5 hours	0.75 hours
5 RCS partially drained	8 hours	0.75 hours	Operation not allowed**	
6	Operation not allowed**			

*Charging pump OPERABILITY for any period of time shall constitute OPERABILITY for the entire monitoring frequency.

**The required charging pumps shall be verified to be inoperable by racking out their motor circuit breakers.

TABLE 3.1-4

REQUIRED MONITORING FREQUENCIES FOR BACKUP BORON DILUTION DETECTION AS A FUNCTION OF OPERATING CHARGING PUMPS AND PLANT OPERATIONAL MODES FOR K_{eff} GREATER THAN 0.95 AND LESS THAN OR EQUAL TO 0.96

$0.96 \geq K_{eff} > 0.95$

OPERATIONAL MODE	Number of Operating Charging Pumps*			
	0	1	2	3
3	12 hours	3.5 hours	1.5 hours	1.0 hours
4	12 hours	4.0 hours	2.0 hours	1.0 hours
5 RCS filled	8 hours	4.5 hours	2.0 hours	1.0 hours
5 RCS partially drained	8 hours	1.0 hours	Operation not allowed**	
6	Operation not allowed**			

*Charging pump OPERABILITY for any period of time shall constitute OPERABILITY for the entire monitoring frequency.

**The required charging pumps shall be verified to be inoperable by racking out their motor circuit breakers.

TABLE 3.1-5

REQUIRED MONITORING FREQUENCIES FOR BACKUP BORON DILUTION DETECTION AS A FUNCTION OF OPERATING CHARGING PUMPS AND PLANT OPERATIONAL MODES FOR K_{eff} LESS THAN OR EQUAL TO 0.95

$K_{eff} \leq 0.95$

OPERATIONAL MODE	Number of Operating Charging Pumps* 0	1	2	3
3	12 hours	4.5 hours	2.0 hours	1.0 hours
4	12 hours	5.0 hours	2.5 hours	1.5 hours
5 RCS filled	8 hours	5.5 hours	2.5 hours	1.5 hours
5 RCS partially drained	8 hours	1.0 hours	0.5 hours	Operation not allowed**
6	24 hours	1.0 hours	Operation not allowed**	

*Charging pump OPERABILITY for any period of time shall constitute OPERABILITY for the entire monitoring frequency.

**The required charging pumps shall be verified to be inoperable by racking out their motor circuit breakers.

3/4.1.3 MOVABLE CONTROL ASSEMBLIES

CEA POSITION

LIMITING CONDITION FOR OPERATION

3.1.3.1 All full-length (shutdown and regulating) CEAs, and all part-length CEAs which are inserted in the core, shall be OPERABLE with each CEA of a given group positioned within 7 inches (indicated position) of all other CEAs in its group.

APPLICABILITY: MODES 1* and 2*.

ACTION:

a. With one or more full-length CEAs inoperable due to being immovable as a result of excessive friction or mechanical interference or known to be untrippable, determine that the SHUTDOWN MARGIN requirement of Specification 3.1.1.1 is satisfied within 1 hour and be in at least HOT STANDBY within 6 hours.

b. With more than one full-length or part-length CEA inoperable or misaligned from any other CEA in its group by more than 19 inches (indicated position), be in at least HOT STANDBY within 6 hours.

c. With one full-length or part-length CEA misaligned from any other CEA in its group by more than 19 inches, operation in MODES 1 and 2 may continue, provided that within 1 hour the misaligned CEA is either:

   1. Restored to OPERABLE status within its above specified alignment requirements, or

   2. Declared inoperable and the SHUTDOWN MARGIN requirement of Specification 3.1.1.1 is satisfied. After declaring the CEA inoperable, operation in MODES 1 and 2 may continue pursuant to the requirements of Specification 3.1.3.6 provided:

      a) Within 1 hour the remainder of the CEAs in the group with the inoperable CEA shall be aligned to within 7 inches of the inoperable CEA while maintaining the allowable CEA sequence and insertion limits shown on Figure 3.1-2; the THERMAL POWER level shall be restricted pursuant to Specification 3.1.3.6 during subsequent operation.

      b) The SHUTDOWN MARGIN requirement of Specification 3.1.1.1 is determined at least once per 12 hours.

   Otherwise, be in at least HOT STANDBY within 6 hours.

*See Special Test Exceptions 3.10.2 and 3.10.4.

BORATION SYSTEMS (Continued)

The contained water volume limits include allowance for water not available because of discharge line location, instrument tolerances, and other physical characteristics.

The OPERABILITY of one boron injection system during REFUELING ensures that this system is available for reactivity control while in MODE 6.

The lower limit on the contained water volume, the specified boron concentration, and the physical size (approximately 600,000 gallons) of the RWSP also ensure a pH value of between 7.0 and 11.0 for the solution recirculated within containment after a LOCA. This pH band minimizes the evolution of iodine and minimizes the effect of chloride and caustic stress corrosion on mechanical systems and components.

The maximum limit on the RWSP temperature ensures that the assumptions used in the containment pressure analysis under design base accident conditions remain valid and avoids the possibility of containment overpressure. The minimum limit on the RWSP temperature is required to prevent freezing and/or boron precipitation in the RWSP.

3/4.1.2.9 BORON DILUTION

This specification is provided to prevent a boron dilution event, and to prevent a loss of SHUTDOWN MARGIN should an inadvertent boron dilution event occur. Due to boron concentration requirements for the RWSP and boric acid makeup tanks, the only possible boron dilution that would remain undetected by the operator occurs from the primary makeup water through the CVCS system. Isolating this potential dilution path or the OPERABILITY of the startup channel high neutron flux alarms, which alert the operator with sufficient time available to take corrective action, ensures that no loss of SHUTDOWN MARGIN and unanticipated criticality occur.

The ACTION requirements specified in the event startup channel high neutron flux alarms are inoperable provide an alternate means to detect boron dilution by monitoring the RCS boron concentration to detect any changes. The frequencies specified in Tables 3.1-1 through 3.1-5 provide the operator sufficient time to recognize a decrease in boron concentration and take appropriate corrective action without loss of SHUTDOWN MARGIN. More frequent checks are required with more charging pumps in operation due to the higher potential boron dilution rate.

The surveillance requirements specified provide assurance that the startup channel high neutron flux alarms remain OPERABLE and that required valve and electrical lineups remain in effect.

3/4.1.3 MOVABLE CONTROL ASSEMBLIES

The specifications of this section ensure that (1) acceptable power distribution limits are maintained, (2) the minimum SHUTDOWN MARGIN is

MOVABLE CONTROL ASSEMBLIES (Continued)

maintained, and (3) the potential effects of CEA misalignments are limited to acceptable levels.

The ACTION statements which permit limited variations from the basic requirements are accompanied by additional restrictions which ensure that the original design criteria are met.

The ACTION statements applicable to a stuck or untrippable CEA, to two or more inoperable CEAs and to a large misalignment (greater than or equal to 19 inches) of two or more CEAs, require a prompt shutdown of the reactor since either of these conditions may be indicative of a possible loss of mechanical functional capability of the CEAs and in the event of a stuck or untrippable CEA, the loss of SHUTDOWN MARGIN.

For small misalignments (less than 19 inches) of the CEAs, there is (1) a small effect on the time dependent long-term power distributions relative to those used in generating LCOs and LSSS setpoints, (2) a small effect on the available SHUTDOWN MARGIN, and (3) a small effect on the ejected CEA worth used in the safety analysis. Therefore, the ACTION statement associated with small misalignments of CEAs permits a 1-hour time interval during which attempts may be made to restore the CEA to within its alignment requirements. The 1-hour time limit is sufficient to (1) identify causes of a misaligned CEA, (2) take appropriate corrective action to realign the CEAs, and (3) minimize the effects of xenon redistribution.

The CPCs provide protection to the core in the event of a large misalignment (greater than or equal to 19 inches) of a CEA by applying appropriate penalty factors to the calculation to account for the misaligned CEA. However, this misalignment would cause distortion of the core power distribution. This distribution may, in turn, have a significant effect on (1) the available SHUTDOWN MARGIN, (2) the time-dependent long-term power distributions relative to those used in generating LCOs and LSSS setpoints, and (3) the ejected CEA worth used in the safety analysis. Therefore, the ACTION statement associated with the large misalignment of a CEA requires a prompt realignment of the misaligned CEA.

The ACTION statements applicable to misaligned or inoperable CEAs include requirements to align the OPERABLE CEAs in a given group with the inoperable CEA. Conformance with these alignment requirements bring the core, within a short period of time, to a configuration consistent with that assumed in generating LCO and LSSS setpoints. However, extended operation with CEAs significantly inserted in the core may lead to perturbations in (1) local burnup, (2) peaking factors, and (3) available SHUTDOWN MARGIN which are more adverse than the conditions assumed to exist in the safety analyses and LCO and LSSS setpoints determination. Therefore, time limits have been imposed on operation with inoperable CEAs to preclude such adverse conditions from developing.

Operability of at least two CEA position indicator channels is required to determine CEA positions and thereby ensure compliance with the CEA alignment and insertion limits. The CEA "Full In" and "Full Out" limits provide an additional independent means for determining the CEA positions when the CEAs are at either their fully inserted or fully withdrawn positions. Therefore, the ACTION statements applicable to inoperable CEA position indicators permit

6.1 RESPONSIBILITY

6.1.1 The Plant Manager-Nuclear shall be responsible for overall unit operation and shall delegate in writing the succession to this responsibility during his absence.

6.1.2 The Shift Supervisor, or during his absence from the control room, a designated individual shall be responsible for the control room command function. A management directive to this effect, signed by the Vice President - Nuclear Operations, shall be reissued to all station personnel on an annual basis.

6.2 ORGANIZATION

OFFSITE

6.2.1 The offsite organization for unit management and technical support shall be as shown in Figure 6.2-1.

UNIT STAFF

6.2.2 The unit organization shall be as shown in Figure 6.2-2 and:

a. Each on-duty shift shall be composed of at least the minimum shift crew composition shown in Table 6.2-1;

b. At least one licensed Operator shall be in the control room when fuel is in the reactor. In addition, while the reactor is in MODE 1, 2, 3, or 4, at least one licensed Senior Operator shall be in the control room.

c. A Health Physics Technician* shall be on site when fuel is in the reactor;

d. All CORE ALTERATIONS shall be observed and directly supervised by either a licensed Senior Reactor Operator or Senior Reactor Operator Limited to Fuel Handling who has no other concurrent responsibilities during this operation.

e. A site fire brigade of at least five members shall be maintained on site at all times.* The fire brigade shall not include the Shift Supervisor, the Shift Technical Advisor, nor the two other members of the minimum shift crew necessary for safe shutdown of the unit and any personnel required for other essential functions during a fire emergency.

*The Health Physics Technician and fire brigade composition may be less than the minimum requirements for a period of time not to exceed 2 hours, in order to accommodate unexpected absence, provided immediate action is taken to fill the required positions.

UNIT STAFF (Continued)

f. Administrative procedures shall be developed and implemented to limit the working hours of individuals of the nuclear power plant operating staff who are responsible for manipulating plant controls or for adjusting on-line systems and equipment affecting plant safety which would have an immediate impact on public health and safety.

Adequate shift coverage shall be maintained without routine heavy use of overtime. The objective shall be to have operating personnel work a normal 8-hour day, 40-hour week while the plant is operating. However, in the event that unforeseen problems require substantial amounts of overtime to be used, the following guidelines shall be followed:

1. An individual shall not be permitted to work more than 16 hours straight, excluding shift turnover time.

2. An individual shall not be permitted to work more than 16 hours in any 24-hour period, nor more than 24 hours in any 48-hour period, nor more than 72 hours in any 7-day period, all excluding shift turnover time.

3. A break of at least 8 hours shall be allowed between work periods, including shift turnover time.

4. Except during extended shutdown periods, the use of overtime shall be considered on an individual basis and not for the entire staff on a shift.

Any deviation from the above guidelines shall be authorized by the Plant Manager, the assistant Plant Managers, the Operations Superintendent - Nuclear or higher levels of management, in accordance with established procedures and with documentation of the basis for granting the deviation. Controls shall be included in the procedures such that individual overtime will be reviewed monthly by the Station Manager or his designee to assure that excessive hours have not been assigned. Routine deviation from the above guidelines is not authorized.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 9 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 September 10 and October 1, 1986, as supplemented by letter dated October 6, 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) redefine the responsibility of senior reactor operators during core alterations and (2) revise the boron dilution requirements while in Modes 5 and 6.

2.0 DISCUSSION

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

2.1 Senior Reactor Operator duties

The proposed change would modify Technical Specification 6.2.2.d to redefine the duties of the Senior Reactor Operators (SROs) during any core alterations.

The present specification states:

> ALL CORE ALTERATIONS shall be observed or performed by a licensed Operator or licensed Senior Operator and supervised by either a licensed Senior Operator or licensed Senior Operator Limited to Fuel Handling who has no other concurrent responsibilities during this period.

The licensee has proposed that Technical Specification 6.2.2.d be rewritten as follows:

> ALL CORE ALTERATIONS shall be observed and directly supervised by either a licensed Senior Reactor Operator or Senior Reactor Operator Limited to Fuel Handling who has no other concurrent responsibilities during this operation.

The proposed change makes it clear that an SRO must be present during all core alterations to observe and directly supervise, regardless of whether the individual doing the actual manipulations has an operator's license or not and that this observation and supervision must be direct. The proposed specification does not allow for supervision from the control room, even with direct communication.

2.2 Boron dilution requirements in Modes 5 and 6

The proposed changes would revise Technical Specification 3.1.2.9, "Reactivity Control Systems, Boron Dilution," Surveillance Requirement 4.1.2.9.4 and the associated Bases section (3/4.1.2.9). The reasons for these changes are: (1) the Cycle 2 core will have higher enriched fuel and is therefore more reactive than the Cycle 1 core; (2) the Shutdown Margin for Cycle 2 is lower than it was for Cycle 1 (when all Control Element Assemblies are inserted); and (3) it is desirable to have more than one charging pump operable when the reactor is in Mode 5 and the Reactor Coolant System (RCS) is partially drained. Specifically, the proposed changes will allow the use of two charging pumps when filling the RCS as long as the k-eff is maintained at a value less than 0.96.

Specification 3.1.2.9b currently requires removing power to two charging pumps when the reactor is in Mode 5 and the RCS is partially drained. The proposed changes would replace this Specification with statements that allow more than one charging pump to be operable depending on the multiplication factor in the core. That is, if the k-eff is between 0.94 and 0.96 it is permissible to have two charging pumps operable or, if the k-eff is less than 0.94, it is permissible to have all three charging pumps operable. In addition, Table 3.1-1 will be replaced with a series of Tables (Tables 3.1-1 through 3.1-5) that provide the required boron sampling frequency as a function of the core multiplication factor that must be adhered to whenever the boron dilution alarm(s) is not operable. By monitoring the boron concentration at these frequencies, the operators will have sufficient time to mitigate a boron dilution event prior to the loss of shutdown margin.

3.0 EVALUATION

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

3.1 Senior reactor operator duties

The proposed change removes the ambiguity involved in interpretation of the existing specification and provides the necessary level of supervision and control during core alterations. Additionally, the proposed change contains the same wording presently in the Standard Technical Specifications. The staff, therefore, finds the proposed change to Technical Specification 6.2.2.d acceptable.

3.2 Boron dilution requirements in Modes 5 and 6

Currently, Technical Specification 3.1.2.9b requires removing power to two charging pumps (leaving only one operable) when the reactor is in Mode 5 and the RCS is partially drained. The proposed changes would allow more than one charging pump to be operable depending on the multiplication factor (k-eff) in the core. Specifically, in Mode 5 with the RCS partially drained for system maintenance, operation of only one charging pump at a maximum rate of 44 gpm would be allowed when k-eff is between 0.96 and 0.98. Power to the other two charging pumps would be removed with their breakers locked out. In Mode 5 with the RCS partially drained, operation of two charging pumps would be allowed when k-eff is between 0.94 and 0.96. In Mode 5 with the RCS partially drained, operation of all three charging pumps would be allowed when k-eff is less than 0.94. In addition, Table 3.1-1 would be replaced with a series of tables (Table 3.1-1 through 3.1-5) that provide the required boron sampling frequency as a function of k-eff whenever the boron dilution alarm(s) is(are) not operable.

Normally, two redundant alarms that actuate when the neutron flux doubles are provided for protection in the event of an inadvertent boron dilution. With one or both of these alarms inoperable, the Cycle 2 safety analyses have shown that by monitoring the RCS boron concentration at the frequencies shown in tables 3.1-1 through 3.1-5, the operators have sufficient time to take the actions necessary to mitigate the event. These tables show that more frequent checks of the RCS boron concentration are required when more charging pumps are operable or when there is a higher k-eff since there is less time available for the operators to take corrective action.

The Cycle 2 boron dilution event analyses have shown that the frequencies specified in Table 3.1-1 through 3.1-5 ensure that an indication of a boron dilution event is provided to the operator at least 15 minutes before criticality would occur (30 minutes for Mode 6) even in the absence of a boron dilution alarm. These are the acceptable time intervals required by Standard Review Plan Section 15.4.6 governing boron dilution events. The parameters used as input to the analyses were reviewed and found to be suitably conservative. In addition, the calculational model used has been previously reviewed and found acceptable by the staff. The proposed changes, therefore, are 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: December 23, 1986

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