

April 26, 2010

Mr. Rafael Flores Senior Vice President and Chief Nuclear Officer Attention: Regulatory Affairs Luminant Generation Company LLC P.O. Box 1002 Glen Rose, TX 76043

SUBJECT: COMANCHE PEAK NUCLEAR POWER PLANT, UNITS 1 AND 2 - ISSUANCE OF AMENDMENTS RE: REVISION TO TECHNICAL SPECIFICATION 3.3.1, "REACTOR TRIP SYSTEM (RTS) INSTRUMENTATION (TAC NOS. ME1027 AND ME1028)

Dear Mr. Flores:

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 151 to Facility Operating License No. NPF-87 and Amendment No. 151 to Facility Operating License No. NPF-89 for Comanche Peak Nuclear Power Plant, Units 1 and 2, respectively. The amendments consist of changes to the Technical Specifications (TSs) in response to your application dated April 2, 2009.

The amendments revise TS 3.3.1, "Reactor Trip System (RTS) Instrumentation," to add Surveillance Requirement 3.3.1.16 to Function 3, "Power Range Neutron Flux Rate High Positive Rate," of TS Table 3.3.1-1. The change is based on a reanalysis of the Rod Cluster Control Assembly Bank Withdrawal at Power event.

A copy of our related Safety Evaluation is enclosed. The Notice of Issuance will be included in the Commission's next biweekly *Federal Register* notice.

Sincerely,

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Balwant K. Singal, Senior Project Manager Plant Licensing Branch IV Division of Operating Reactor Licensing Office of Nuclear Reactor Regulation

Docket Nos. 50-445 and 50-446

Enclosures:

- 1. Amendment No. 151 to NPF-87
- 2. Amendment No. 151 to NPF-89
- 3. Safety Evaluation

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LUMINANT GENERATION COMPANY LLC

COMANCHE PEAK NUCLEAR POWER PLANT, UNIT NO. 1

DOCKET NO. 50-445

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 151 License No. NPF-87

- 1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Luminant Generation Company LLC dated April 2, 2009, 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.

- 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-87 is hereby amended to read as follows:
 - (2) <u>Technical Specifications and Environmental Protection Plan</u>

The Technical Specifications contained in Appendix A as revised through Amendment No. 151 and the Environmental Protection Plan contained in Appendix B, are hereby incorporated into this license. Luminant Generation Company LLC shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan as indicated in the attachment to this license amendment.

3. The license amendment is effective as of its date of issuance and shall be implemented within 120 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

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Michael T. Markley, Chief Plant Licensing Branch IV Division of Operating Reactor Licensing Office of Nuclear Reactor Regulation

Attachment: Changes to the Facility Operating License No. NPF-87 and Technical Specifications

Date of Issuance: April 26, 2010



LUMINANT GENERATION COMPANY LLC

COMANCHE PEAK NUCLEAR POWER PLANT, UNIT NO. 2

DOCKET NO. 50-446

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 151 License No. NPF-89

- 1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Luminant Generation Company LLC dated April 2, 2009, 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.

- 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-89 is hereby amended to read as follows:
 - (2) <u>Technical Specifications and Environmental Protection Plan</u>

The Technical Specifications contained in Appendix A as revised through Amendment No. 151 and the Environmental Protection Plan contained in Appendix B, are hereby incorporated into this license. Luminant Generation Company LLC shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance and shall be implemented within 120 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

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Michael T. Markley, Chief Plant Licensing Branch IV Division of Operating Reactor Licensing Office of Nuclear Reactor Regulation

Attachment: Changes to the Facility Operating License No. NPF-89 and Technical Specifications

Date of Issuance: April 26, 2010

ATTACHMENT TO LICENSE AMENDMENT NO. 151

TO FACILITY OPERATING LICENSE NO. NPF-87

AND AMENDMENT NO. 151

TO FACILITY OPERATING LICENSE NO. NPF-89

DOCKET NOS. 50-445 AND 50-446

Replace the following pages of the Facility Operating License Nos. NPF-87 and NPF-89, and Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Facility Operating License	<u>No. NPF-87</u>				
REMOVE	INSERT				
3	3				
Facility Operating License No. NPF-89					
REMOVE	<u>INSERT</u>				
3	3				
Technical Specifications					
REMOVE	INSERT				
3.3-14	3.3-14				

- (3) Luminant Generation Company LLC, pursuant to the Act and 10 CFR Part 70, to receive, possess, and use at any time, special nuclear material as reactor fuel, in accordance with the limitations for storage and amounts required for reactor operation, and described in the Final Safety Analysis Report, as supplemented and amended;
- (4) Luminant Generation Company LLC, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use, at any time, any byproduct, source, and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;
- (5) Luminant Generation Company LLC, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use in amounts as required, any byproduct, source, and special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; and
- (6) Luminant Generation Company LLC, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.
- C. This license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10 CFR Chapter I and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:
 - (1) <u>Maximum Power Level</u>

Luminant Generation Company LLC is authorized to operate the facility at reactor core power levels not in excess of 3458 megawatts thermal through Cycle 13 and 3612 megawatts thermal starting with Cycle 14 in accordance with the conditions specified herein.

(2) <u>Technical Specifications and Environmental Protection Plan</u>

The Technical Specifications contained in Appendix A as revised through Amendment No. 151 and the Environmental Protection Plan contained in Appendix B, are hereby incorporated into this license. Luminant Generation Company LLC shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

- (3) Luminant Generation Company LLC, pursuant to the Act and 10 CFR Part 70, to receive, possess, and use at any time, special nuclear material as reactor fuel, in accordance with the limitations for storage and amounts required for reactor operation, and described in the Final Safety Analysis Report, as supplemented and amended;
- (4) Luminant Generation Company LLC, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use, at any time, any byproduct, source, and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;
- (5) Luminant Generation Company LLC, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use in amounts as required, any byproduct, source, and special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; and
- (6) Luminant Generation Company LLC, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.
- C. This license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10 CFR Chapter I and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:
 - (1) <u>Maximum Power Level</u>

Luminant Generation Company LLC is authorized to operate the facility at reactor core power levels not in excess of 3458 megawatts thermal through Cycle 11 and 3612 megawatts thermal starting with Cycle 12 in accordance with the conditions specified herein.

(2) <u>Technical Specifications and Environmental Protection Plan</u>

The Technical Specifications contained in Appendix A as revised through Amendment No. 151 and the Environmental Protection Plan contained in Appendix B, are hereby incorporated into this license. Luminant Generation Company LLC shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

(3) Antitrust Conditions

DELETED

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE ^(a)
1.	Manual Reactor Trip	1,2	2	B	SR 3.3.1.14	NA
		3 ^{(b),} 4 ^(b) , 5 ^(b)	2	С	SR 3.3.1.14	NA
2.	Power Range Neutron Flux					
	a. High	1,2	4	D	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.7 SR 3.3.1.11 SR 3.3.1.16	≤ 109.6% RTP ^{(q)(r)}
	b. Low	1 ^(c) , 2	4	E	SR 3.3.1.1 SR 3.3.1.8 SR 3.3.1.11 SR 3.3.1.16	≤ 25.6% RTP ^{(q)(r)}
3.	Power Range Neutron Flux Rate High Positive Rate	1,2	4	E	SR 3.3.1.7 SR 3.3.1.11 SR 3.3.1.16	\leq 6.3% RTP with time constant \geq 2 sec
4.	Intermediate Range Neutron Flux	1 ^(c) , 2 ^(d)	2	F,G	SR 3.3.1.1 SR 3.3.1.8 SR 3.3.1.11	≤ 31.5% RTP

Table 3.3.1-1 (page 1 of 6) Reactor Trip System Instrumentation

(a) The Allowable Value defines the limiting safety system setting except for Trip Functions 2a, 2b, 6, 7, and 14 (the Nominal Trip Setpoint defines the limiting safety system setting for these Trip Functions). See the Bases for the Nominal Trip Setpoints.

- (b) With Rod Control System capable of rod withdrawal or one or more rods not fully inserted.
- (c) Below the P-10 (Power Range Neutron Flux) interlock.
- (d) Above the P-6 (Intermediate Range Neutron Flux) interlock.

(q) If the as-found channel setpoint is conservative with respect to the Allowable Value but outside its predefined as-found acceptance criteria band, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.

(r) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance of the Nominal Trip Setpoint or a value that is more conservative than the Trip Setpoint; otherwise, the channel shall be declared inoperable. The Nominal Trip Setpoint, the methodology used to determine the as-found tolerance and the methodology used to determine the as-left tolerance shall be specified in the Technical Specification Bases.



SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 151 TO

FACILITY OPERATING LICENSE NO. NPF-87

AND AMENDMENT NO. 151 TO

FACILITY OPERATING LICENSE NO. NPF-89

LUMINANT GENERATION COMPANY LLC

COMANCHE PEAK NUCLEAR POWER PLANT, UNITS 1 AND 2

DOCKET NOS. 50-445 AND 50-446

1.0 INTRODUCTION

By application dated April 2, 2009 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML091030383), Luminant Generation Company LLC (the licensee) requested changes to the Technical Specifications (TSs) for Comanche Peak Nuclear Power Plant (CPNPP), Units 1 and 2. The proposed amendment would revise TS 3.3.1, "Reactor Trip System (RTS) Instrumentation," to add Surveillance Requirement (SR) 3.3.1.16 to Function 3, "Power Range Neutron Flux Rate High Positive Rate," of TS Table 3.3.1-1 to verify that the reactor trip system (RTS) response times are within limits every 18 months on a staggered test basis.

2.0 REGULATORY EVALUATION

The U.S. Nuclear Regulatory Commission (NRC) staff considered the following regulatory requirements in its review of the license amendment request (LAR):

Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," establishes the fundamental regulatory requirements with respect to the domestic licensing of nuclear production and utilization facilities. Specifically, Appendix A, "General Design Criteria [GDC] for Nuclear Power Plants," to 10 CFR Part 50 provides, in part, the necessary design, fabrication, construction, testing, and performance requirements for structures, systems, and components important to safety. In its application, the licensee identified the following GDCs as being applicable to the proposed change:

• General Design Criterion 13, "Instrumentation and control," requires that instrumentation shall be provided to monitor variables and systems over their anticipated ranges for

Enclosure 3

normal operation, for anticipated operational occurrences, and for accident conditions as appropriate to assure adequate safety, including those variables and systems that can affect the fission process, the integrity of the reactor core, the reactor coolant pressure boundary, and the containment and its associated systems. Appropriate controls shall be provided to maintain these variables and systems within prescribed operating ranges.

• General Design Criterion 20, "Protective system functions," requires the protection system to be designed (1) to initiate automatically the operation of appropriate systems including the reactivity control systems, to assure that specified acceptable fuel design limits are not exceeded as a result of anticipated operational occurrences and (2) to sense accident conditions and to initiate the operation of systems and components important to safety.

Section 50.36, "Technical specifications," of 10 CFR requires that the TSs include items in the following specific categories: (1) Safety limits, limiting safety systems settings, and limiting control settings; (2) Limiting conditions for operations; (3) Surveillance requirements; (4) Design features; and (5) Administrative controls. The regulations in 10 CFR 50.36(c)(3), "Surveillance requirements," specify that SRs are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met.

3.0 TECHNICAL EVALUATION

The positive flux rate trip (PFRT) ensures that protection is provided against rapid increases in neutron flux that are characteristic of a rod cluster control assembly (RCCA) drive rod housing rupture and the accompanying ejection of the RCCA. The PFRT was not credited previously in the CPNPP safety analysis for protection against anticipated transients or postulated accidents. However, based on a Westinghouse reanalysis of the uncontrolled RCCA bank withdrawal at power (RWAP) transient using more conservative analytical assumptions, the licensee has determined that the PFRT should be credited in the CPNPP safety analysis for primary protection. Therefore, the licensee has proposed that TS 3.3.1, "Reactor Trip System (RTS) Instrumentation," be revised to require that PFRT response times be verified.

In the LAR, the licensee explained that, Westinghouse Electric Corporation issued Nuclear Safety Advisory Letter (NSAL) 02-11, "Reactor Protection System Response Time Requirements," dated July 29, 2002, which notified licensees that some positive neutron flux rate trip (i.e., PFRT) functions may be credited for protection against anticipated transients or postulated accidents, but may not be explicitly credited for primary protection in the specific safety analysis cases presented in the updated Final Safety Analysis Report. In an evaluation of NSAL 02-11, the licensee determined that the PFRT was not explicitly credited for primary protection, and that in those analyses where it was considered, the assumed response time was much longer than the value expected so that an explicit response time measurement was not considered necessary. The licensee reanalyzed the RWAP event using more conservative analytical assumptions and has determined that the PFRT should be credited in the CPNPP safety analysis for primary protection of the reactor core.

Based on the reanalysis, the licensee is proposing that TS 3.3.1 be revised to add SR 3.3.1.16 to Table 3.3.1-1, Function 3, "Power Range Neutron Flux Rate High Positive Rate." The existing SR 3.3.1.16 requires verification that the RTS channel actuation response times are less than or equal to the maximum values assumed in the accident analysis. The RTS response time is defined in the TS as that time interval from when the monitored parameter exceeds its RTS trip setpoint at the channel sensor until loss of stationary gripper coil voltage. The loss of stationary gripper coil voltage is when the operable RCCAs drop into the reactor core and shut down or trip the reactor. The existing Allowable Value for the PFRT function is ≤ 6.3 percent rated thermal power (RTP) with time constant ≥ 2 seconds.

The licensee stated that a rate setpoint of 9 percent RTP (per second) with lagging time constant of 2.0 seconds and a 6.5 second trip delay was assumed in the RWAP analysis. These values support the nominal trip setpoint of 5 percent RTP with a time constant of \geq 2 seconds and the existing Allowable Value of \leq 6.3 percent RTP with a time constant of \geq 2 seconds.

The licensee has stated that in addition to the proposed TS changes, a response time limit of 0.65 seconds for the PFRT response time will be included in Table 13.3.1-1, "Reactor Trip System (RTS) Instrumentation Response Time Limits," in the Technical Requirements Manual (TRM).

The PFRT instrumentation is segmented into two interconnected portions which are (1) detectors, field contacts, and signal conditioners that are configured into four channels, and (2) logic and reactor trip breakers that are configured into two trains.

SR 3.3.1.16 verifies that the individual channel and train actuation response times are less than or equal to the maximum values assumed in the accident analysis. The required trip initiation signals and acceptance criteria for response time testing are included in the TRM. SR 3.3.1.16 has a surveillance test interval of 18 months on a staggered test basis. The surveillance performed every 18 months includes at least one channel and train such that both trains are verified at least once per 36 months and is consistent with the existing SR 3.3.1.16 requirements for other functions in TS 3.3.1. The response times of the train portions cannot be verified during normal plant operation and are normally performed during refueling outages, when the equipment can be taken out of service for performing the surveillance.

The NRC staff has reviewed the licensee's request to add SR 3.3.1.16 to Function 3 of TS Table 3.3.1-1 and concludes that the change is consistent with the existing SR 3.3.1.16 requirements for other functions in TS 3.3.1. The addition of SR 3.3.1.16 to Function 3 of TS Table 3.3.1-1 is needed since the licensee intends to take credit for the PRFT function in its analysis of the RWAP event. The NRC staff concludes that the addition of SR 3.3.1.16 to Function 3, "Power Range Neutron Flux Rate High Positive Rate," of TS Table 3.3.1-1 is the appropriate requirement to demonstrate that the response times are less than or equal to the maximum values assumed in the accident analysis and satisfies the requirements of 10 CFR 50.36 and GDCs 13 and 20.

4.0 STATE CONSULTATION

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

5.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding published in the *Federal Register* on May 19, 2009 (74 FR 23446). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: Barry Marcus

Date: April 26, 2010

Mr. Rafael Flores Senior Vice President and Chief Nuclear Officer Attention: Regulatory Affairs Luminant Generation Company LLC P.O. Box 1002 Glen Rose, TX 76043

COMANCHE PEAK NUCLEAR POWER PLANT, UNITS 1 AND 2 - ISSUANCE SUBJECT: OF AMENDMENTS RE: REVISION TO TECHNICAL SPECIFICATION 3.3.1. "REACTOR TRIP SYSTEM (RTS) INSTRUMENTATION (TAC NOS. ME1027 AND ME1028)

Dear Mr. Flores:

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The amendments revise TS 3.3.1, "Reactor Trip System (RTS) Instrumentation," to add Surveillance Requirement 3.3.1.16 to Function 3, "Power Range Neutron Flux Rate High Positive Rate," of TS Table 3.3.1-1. The change is based on a reanalysis of the Rod Cluster Control Assembly Bank Withdrawal at Power event.

A copy of our related Safety Evaluation is enclosed. The Notice of Issuance will be included in the Commission's next biweekly Federal Register notice.

Sincerely.

/RA/

Balwant K. Singal, Senior Project Manager Plant Licensing Branch IV **Division of Operating Reactor Licensing** Office of Nuclear Reactor Regulation

Docket Nos. 50-445 and 50-446

Enclosures:

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*Memo dated 12/23/09

ADAMS Accession No. ML100070567

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NAME	BSingal	JBurkhardt	WKemper*	GCranston	RElliott	BMizuno	MMarkley	BSingal
DATE	3/8/10	3/4/10	12/23/09	3/10/10	3/11/10	4/14/10	4/23/10	4/26/10

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