

March 15, 2006

Mr. M. R. Blevins
Senior Vice President
& Chief Nuclear Officer
TXU Power
ATTN: Regulatory Affairs
P. O. Box 1002
Glen Rose, TX 76043

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION (CPSES), UNIT 2 -
ISSUANCE OF AMENDMENT RE: ADDITION OF TOPICAL REPORT
WCAP-13060-P-A, "WESTINGHOUSE FUEL ASSEMBLY RECONSTITUTION
EVALUATION METHODOLOGY" TO THE LIST OF NRC APPROVED
METHODOLOGIES (TAC NO. MC6927)

Dear Mr. Blevins:

The Commission has issued the enclosed Amendment No. 123 to Facility Operating License No. NPF-89 for CPSES, Unit 2. The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated April 27, 2005, as supplemented by letter dated July 20, 2005.

In a previous action, the Commission issued Amendment No. 123 on October 11, 2005, to Facility Operating License No. NPF-87 for CPSES, Unit 1, which was issued as an Exigent amendment to support the October 2005 refueling outage of Unit 1.

The amendment revises TS 5.6.5, "Core Operating Limits Report (COLR)," by adding topical report WCAP-13060-P-A, "Westinghouse Fuel Assembly Reconstitution Evaluation Methodology," to the list of NRC approved methodologies to be used at CPSES, Unit 2.

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/

Mohan C. Thadani, Senior Project Manager,
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-446

Enclosures: 1. Amendment No. 123 to NPF-89
2. Safety Evaluation

cc w/encls: See next page

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NRR-058

*** no significant changes to SE input**

OFFICE	NRR/LPL4/PM	NRR/LPL4/LA	SPWB/BC	OGC	NRR/LPL4/BC
NAME	MThadani	DJohnson	JNakoski*	Suttal NLO/WC	DTerao
DATE	3/2/06	2/13/06	08/22/05	3/10/06	3/15/06

OFFICIAL RECORD COPY

TXU GENERATION COMPANY LP
COMANCHE PEAK STEAM ELECTRIC STATION, UNIT NO. 2
DOCKET NO. 50-446
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 123
License No. NPF-89

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by TXU Generation Company LP dated April 27, 2005, as supplemented by letter dated July 20, 2005, 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) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 123, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated into this license. TXU Generation Company LP shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. The license amendment is effective as of its date of issuance and shall be implemented 60 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

David Terao, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of Issuance: March 15, 2006

ATTACHMENT TO LICENSE AMENDMENT NO. 123

TO FACILITY OPERATING LICENSE NO. NPF-89

DOCKET NO. 50-446

Replace the following page of the Appendix A Technical Specifications with the attached revised page. The revised page is identified by amendment number and contains marginal lines indicating the areas of change.

Remove

Insert

5.0-34

5.0-34

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 123 TO

FACILITY OPERATING LICENSE NO. NPF-89

TXU GENERATION COMPANY LP

COMANCHE PEAK STEAM ELECTRIC STATION, UNIT 2

DOCKET NO. 50-446

1.0 INTRODUCTION

By application dated April 27, 2005 (Reference 1), as supplemented by letter dated July 20, 2005 (Reference 2), TXU Generation Company LP (the licensee), requested changes to the Technical Specifications (TSs) for Comanche Peak Steam Electric Station (CPSES), Unit 2.

The licensee requested the amendment to revise TS 5.6.5, "Core Operating Limits Report (COLR)," by adding topical report (TR) WCAP-13060-P-A, "Westinghouse Fuel Assembly Reconstitution Evaluation Methodology," (Reference 3) to the list of NRC approved methodologies to be used at CPSES, Unit 2. TR WCAP-13060-P-A is an NRC-approved methodology for analyzing the replacement of failed or damaged fuel rods in Westinghouse-supplied fuel assemblies. Specifically, TR WCAP-13060-P-A describes a mechanical design for Westinghouse fuel assemblies that uses solid filler rods constructed of Zircaloy-4, ZIRLO, or stainless steel to replace failed or damaged fuel rods.

2.0 REGULATORY EVALUATION

In its safety evaluation (SE) for WCAP-13060-P-A, the NRC staff stated that it reviewed the TR consistent with the objectives described in Section 4.2, "Fuel System Design" (Reference 4) of the Standard Review Plan (SRP). Specifically, the review focused on providing assurance of the following: 1) the fuel system is not damaged as a result of normal operation and anticipated operational occurrences (AOOs), 2) fuel system damage is never so severe as to prevent control rod insertion when it is required, 3) the number of fuel rod failures is not underestimated for postulated accidents, and 4) coolability is always maintained.

Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Appendix A, "General Design Criteria [(GDC)] for Nuclear Power Plants," provides a list of the minimum design requirements for nuclear power plants. Consistent with the criteria described in SRP Section 4.2, the NRC staff reviewed the TR against the following GDC.

- GDC 10, "Reactor design," as it relates to assuring that specified acceptable fuel design limits are not exceeded during any condition of normal operation, including the effects of anticipated operational occurrences.

- GDC 27 "Combined reactivity control systems capability," as it relates to the reactivity control systems being designed with appropriate margin, and in conjunction with the emergency core cooling system (ECCS), being capable of controlling reactivity and cooling the core under post accident conditions.
- GDC 35, "Emergency core cooling," as it relates to providing an ECCS to transfer heat from the reactor core following any loss of reactor coolant at a rate such that (1) fuel and clad damage that could interfere with the continued effective core cooling is prevented, and (2) clad metal-water reaction is limited to negligible amounts.

In addition to the GDC, SRP Section 4.2 requires that analyses be performed in accordance with 10 CFR 50.46, "Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors," to demonstrate that specific coolability requirements for a loss-of-coolant accident (LOCA) are satisfied. Additionally, SRP Section 4.2 requires that fuel rod failures be accounted for in the dose analyses required by 10 CFR Part 100, "Reactor Site Criteria," for postulated accidents.

In its SE, the NRC staff used the above regulatory criteria to evaluate the proposed reconstitution methodology provided in WCAP-13060-P-A. The NRC staff determined that the above criteria would be satisfied by a licensee implementing the TR methodology, provided certain limitations and conditions were met. The NRC staff provided a list of those limitations in its SE. Therefore, the purpose of this SE is not to review the methodology provided in WCAP-13060-P-A, but instead to ensure that the implementation of that methodology is consistent with the NRC staff's limitations and conditions provided in the TR SE. The NRC staff's technical evaluation is provided in Section 3.0 of this SE.

3.0 TECHNICAL EVALUATION

In its amendment request, the licensee provided a summary of the potential effects of the reconstituted fuel assemblies on the evaluations supporting reloaded core configurations. The analytical tools used by the licensee at CPSES, Unit 2, have been reviewed and approved by the NRC and are located in TS 5.6.5.

The licensee stated in its amendment request that, for CPSES, Unit 2, reload core configurations, the fuel rod and fuel assembly mechanical design evaluations are performed by Westinghouse using the same methodologies described in WCAP-1306-P-A. For these aspects of the analysis, the licensee is using the TR consistent with the NRC staff's approval.

With regard to the CPSES, Unit 2, nuclear design tools, the licensee stated that the application of these tools to the reconstituted fuel assembly configuration is within the set of conditions considered in the qualification. In Reference 2, the licensee stated that the nuclear design tools used are described in TR RXE-89-003-P-A, "Steady State Reactor Physics Methodology." This methodology has been reviewed and approved previously by the NRC staff. Furthermore, the licensee stated that the effects of reconstituted fuel assemblies are explicitly considered and factored into the nuclear design parameters used as input to the plant's safety analyses. The licensee compared the parameters from its nuclear design tools to those listed in WCAP-13060-P-A and found that its tools provide the same information. The licensee then uses these parameters to perform thermal-hydraulic, transient, and accident evaluations to

ensure the relevant event acceptance limits are met. The licensee performs its required evaluations using the analytical methodologies listed in its COLR. The NRC staff has determined that the licensee will use NRC-approved methodologies, consistent with their approval, for performing the required safety analyses on reconstituted fuel assemblies. The NRC staff also finds that the licensee's comparison of its nuclear design tools to those listed in WCAP-13060-P-A provides reasonable assurance that the key design and safety parameters for both reconstituted and original fuel assemblies are evaluated as part of each core reload.

The licensee's analytical methods for evaluating large and small break LOCAs at CPSES, Unit 2, are listed in TS 5.6.5.b. The licensee stated that its methodology for analyzing LOCAs differs from the approach approved in WCAP-13060-P-A. Specifically, the analysis methodologies in the TR are intended to bound several core configurations, whereas CPSES, Unit 2's, methodologies are performed on a cycle-specific basis. The licensee evaluated the potential adverse effects related to inclusion of non-heat-producing filler rods on the LOCA analyses. The licensee determined that these rods will cause a slight increase in the average power in the fuel rods. This is consistent with the NRC staff's conclusion provided in the SE report for WCAP-13060-P-A. Since the licensee's LOCA evaluation methodology is performed on a cycle-specific basis, it explicitly models the reconstituted fuel assemblies each cycle and evaluates their impact on satisfying the 10 CFR 50.46 acceptance criteria. Therefore, the NRC staff finds that, since the licensee's LOCA methodologies have been previously reviewed and approved by the NRC staff and the licensee will explicitly analyze the effects of reconstituted assemblies to ensure the 10 CFR 50.46 acceptance criteria are met, the licensee has an acceptable approach for evaluating the effects of reconstituted assemblies during LOCA events.

Similar to the differences in LOCA analysis methodologies, the licensee evaluated its analytical methods for non-LOCA events. In the TR, a reference analysis approach, or bounding analysis, is performed to develop limits on various cycle-specific parameters to demonstrate compliance with the appropriate acceptance criteria. Subsequently, cycle-specific analyses are performed to ensure that the limits are met for each reload core configuration. However, the analytical methods used at CPSES, Unit 2 are performed on a cycle-specific basis to demonstrate that the appropriate acceptance criteria are met for each transient and accident. The CPSES, Unit 2, methods are listed in TS 5.6.5.b. In Reference 2, the licensee described a demonstration exercise it performed to verify that its subchannel analysis tool was capable of accurately modeling and evaluating the differences between reconstituted assemblies and original assemblies. The demonstration exercise modeled the approach described in WCAP-13060-P-A. The licensee determined that the departure from nucleate boiling ratio for the reconstituted fuel assembly was higher than for the original assembly. These results were consistent with those presented in the TR and accurately reflect known phenomena for reconstituted assemblies. Since the licensee will use approved methodologies for cycle-specific analysis of non-LOCA transients and accidents and has performed an adequate analysis to ensure the acceptability of the results obtained, the NRC staff finds that the licensee's use of its CPSES, Unit 2, non-LOCA analytical tools is acceptable for reconstituted assembly analysis. Since the licensee will use approved methodologies for cycle-specific analysis of non-LOCA transients and accidents and has performed an adequate analysis to ensure the acceptability of the results obtained, the NRC staff finds that the licensee's use of its CPSES, Unit 2, non-LOCA analytical tools is acceptable for reconstituted assembly analysis.

The major limitation in the NRC staff's approval of the WCAP-13060-P-A was a restriction on its application to only reconstituted assemblies with mixing vane grid design. In Reference 2, the licensee confirmed that, in accordance with the restrictions on the use of methodologies listed in TS 5.6.5, it will apply the reconstitution methodology described in WCAP-13060-P-A only to fuel assemblies with Westinghouse mixing vane grid designs. Therefore, the NRC staff finds that the licensee has satisfied the limitations contained in the NRC staff's approval of WCAP-13060-P-A.

Based on the evaluation provided above, the NRC staff concludes that the proposed TS change to add WCAP-13060-P-A to the list of acceptable methodologies in TS 5.6.5, is acceptable. Specifically, the NRC staff finds that the licensee's previously-approved methodologies provide reasonable assurance that the licensee will analyze reconstituted assemblies in a manner consistent with the WCAP-13060-P-A methodology and that appropriate safety and design criteria for core reloads will be satisfied.

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 amendment changes 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 amendment involves no significant increase in the amounts, and no significant changes 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 amendment involves no significant hazards consideration, and there has been no public comment on such finding published November 8, 2005 (70 FR 67753). 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 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 amendment will not be inimical to the common defense and security or to the health and safety of the public.

7.0 REFERENCES

1. Letter from F. W. Madden (TXU Power) to U.S. Nuclear Regulatory Commission, "License Amendment Request (LAR) 05-002, Revision to Technical Specification (TS) 5.6.5, 'Core Operating Limits Report (COLR),' dated April 27, 2005, ADAMS Accession No. ML051230317.

2. Letter from F. W. Madden (TXU Power) to U.S. Nuclear Regulatory Commission, "Request for Additional Information Regarding License Amendment Request (LAR) 05-002, Revision to Technical Specification (TS) 5.6.5, 'Core Operating Limits Report (COLR),' dated July 20, 2005, ADAMS Accession No. ML052080164.
3. WCAP-13060-P-A, "Westinghouse Fuel Assembly Reconstitution Evaluation Methodology," July 1993.
4. NUREG-0800, Standard Review Plan, Section 4.2, "Fuel System Design," Draft Revision 3, April 1996.

Principal Contributor: R. Taylor

Date: March 15, 2006

Comanche Peak Steam Electric Station

cc:

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