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Ref: 10CFR50.90

CPSES-200200481
Log # TXX-02037
File # 10010, 236

February 18, 2002

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION (CPSES)
DOCKET NOS. 50-445 AND 50-446
SUPPLEMENT 1 TO LICENSE AMENDMENT
REQUEST (LAR) 01-011, REVISION TO TECHNICAL
SPECIFICATION (TS), TS 4.2.1, "FUEL ASSEMBLIES"
(TAC NOS. MB3446 and MB3447)

REF: TXU Generation Company LP Letter, logged TXX-01164, from C. L. Terry to the NRC dated October 27, 2001

Gentlemen:

Per the above referenced letter, TXU Generation Company LP requested to amend the CPSES Unit 1 Operating License (NPF-87) and CPSES Unit 2 Operating License (NPF-89) by revising TS 4.2.1 entitled "Fuel Assemblies" to allow the use of eight lead test fuel assemblies (LTAs) in the Unit 2, Cycle 7 core load of the Westinghouse 17X17 OFA (Optimized Fuel Assembly) design using fuel cladding made of a zirconium based alloy known commercially as ZIRLO™. In a telephone conference on February 7, 2002, between members of the NRC staff and CPSES personnel, several questions were discussed regarding the subject LAR. The questions and responses to those questions are presented in the attachment to this letter.

This communication contains the following new commitment which will be completed as noted:

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Commitment Number	Commitment
27258	In addition, TXU Generation Company LP will provide the following information, consistent with the guidance provided in WCAP-15604-NP, Revision 1, "Limited Scope High Burnup Lead Test Assemblies," October 2001:

Utility Name:	TXU Generation Company LP
Plant Name:	Comanche Peak Steam Electric Station, Unit 2
Cycle LTA Inserted:	Cycle 7
No. of LTAs:	8
LTA Burnup:	Fresh assemblies inserted in Cycle 7; maximum burnup at discharge < 60 GWD/MTU.
Planned Post Irradiation Examinations (PIEs):	Clad oxide measurements and visual examinations
Schedule for PIE and Release of Results:	PIEs are currently planned to be conducted following Cycle 7 and Cycle 8 of Unit 2 operation (nominal 18 month cycle length). A summary of the PIE and associated data results will be provided within 90 days after completion of each outage following Unit 2 Cycle 7 and Cycle 8.

Please contact Mr. J. D. Seawright at (254) 897-0140 should you have any questions.

I state under penalty of perjury that the foregoing is true and correct.

Executed on February 18, 2002

Sincerely,

TXU Generation Company LP
By: TXU Generation Management Company LLC,
Its General Partner

C. L. Terry
Senior Vice President and Prinicpal Nuclear Officer

By: Roger D. Walker
Roger D. Walker
Regulatory Affairs Manager

JDS/js

Attachment

c - E. W. Merschoff, Region IV
C. E. Johnson, Region IV
D. H. Jaffe, NRR
Resident Inspectors, CPSES

Comanche Peak ZIRLO™ LTA Responses to NRC Questions

Question 1

Does TXU plan to comply with the guidance for LTAs provided in WCAP-15604-NP-Rev. 1? Please identify and justify any TXU deviations from the WCAP-15604-NP-Rev. 1 guidance.

Response to Question 1

WCAP-15604, Revision 1, "Limited Scope High Burnup Lead Test Assemblies," primarily addresses "high burnup" lead fuel programs, therefore, this WCAP is not specifically applicable to this lead test assembly (LTA) situation; although, the general intent may be followed.

TXU Generation Company LP is anticipating the implementation of an EPRI-sponsored modification of the CPSES RCS chemistry program to increase the pH (referred to as the "elevated pH program") in order to minimize the generation of CRUD throughout the Reactor Coolant System and the CRUD buildup on fuel assemblies. This CRUD buildup has been closely correlated with the presence of the Axial Offset Anomaly (AOA). It is important for the success of this program that the fuel assemblies should be typical of future fuel assemblies anticipated to be used at CPSES; i.e., they must be ZIRLO™ clad.

The effects of the proposed elevated pH program on the remaining parts of the RCS have been evaluated. The conclusions from this evaluation affect the ultimate decision to pursue the elevated pH program; however, the presence of fuel assembly designs with ZIRLO™ clad is considered to be a minimum requirement.

If, as anticipated, an elevated pH program is implemented in CPSES Unit 2 beginning with Cycle 7, then clad oxide thickness (corrosion) measurements will be performed on a representative number of the ZIRLO™ lead assemblies over several cycles to confirm no significant increase in the predicted oxide layer as a result of program. If the elevated pH program is not implemented, then there would be no fuel performance aspects of these ZIRLO™ assemblies which have not already been licensed and received extensive operational experience at other Westinghouse fueled reactors similar to CPSES.

In addition, TXU Generation Company LP will provide the following information, consistent with the guidance provided in WCAP-15604-NP, Revision 1, "Limited Scope High Burnup Lead Test Assemblies," October 2001:

Utility Name:	TXU Generation Company LP
Plant Name:	Comanche Peak Steam Electric Station, Unit 2
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Planned Post Irradiation Examinations (PIEs):	Clad oxide measurements and visual examinations
Schedule for PIE and Release of Results:	PIEs are currently planned to be conducted following Cycle 7 and Cycle 8 of Unit 2 operation (nominal 18 month cycle length). A summary of the PIE results and associated data will be provided within 90 days after completion of each outage following Unit 2 Cycle 7 and Cycle 8.

Question 2

The October 28, 2001, CPSES submittal states that "the purpose of this lead test effort is to gain experience at CPSES with the use of current generation Westinghouse fuel assemblies..." Please be more specific about what is to be gained by inserting ZIRLO LTAs at CPSES.

Response to Question 2

If, as anticipated, ZIRLO™ LTAs are introduced in CPSES Unit 2 Cycle 7 (Spring, 2002), and an elevated pH program is implemented at CPSES beginning with Unit 2 Cycle 7, the results of the elevated pH program on ZIRLO™ fuel can then be evaluated at the earliest possible date. ZIRLO™ fuel is currently the standard product supplied by Westinghouse in their fuel designs, and CPSES intends to use ZIRLO™ in future Westinghouse reloads.

A secondary benefit for TXU Generation Company LP will be realized as the fabrication of a limited number of Westinghouse fuel assemblies (ZIRLO™ LTAs) in Unit 2 Cycle 7 will allow TXU Generation Company LP to monitor the quality of the Westinghouse's

Quality Assurance and manufacturing processes prior to receiving the first full Westinghouse reload under TXU Generation Company LP's new fuel contract. The majority of the reload fuel for Unit 2 Cycle 7 is to be supplied by Framatome ANP; however, a contract provision allows a limited number of lead use assemblies to be supplied from another vendor (in this case, 8 Westinghouse lead assemblies for Unit 2 Cycle 7). The first full Westinghouse reload under TXU Generation Company LP's new fuel contract will be supplied for Unit 1, Cycle 10 in the fall of 2002, followed by Unit 2, Cycle 8 in the fall of 2003.

Question 2.a

What data is to be taken? Will data be taken which will address any potential disconnects in modeling ZIRLO fuel with TXU analysis methodologies versus Westinghouse methodologies?

Response to Question 2.a

No data is required in order for TXU Generation Company LP to incorporate ZIRLO™ in TXU Generation Company LP analyses. There are no "disconnects" associated with the modeling of ZIRLO™ fuel in the TXU Generation Company LP analysis methodologies.

If the elevated pH program is implemented in Unit 2 beginning with Cycle 7 as anticipated, clad oxide layer (corrosion) measurements will be obtained in representative ZIRLO™ assemblies at each outage until discharge to confirm that there is no significant increase in predicted clad corrosion as a result of the elevated pH program.

Question 2.b

If LTAs are inserted in only non-limiting locations, how is the experience that is gained beneficial?

Response to Question 2.b

LTAs will be placed in typical duty locations, including some high (but not necessarily LOCA limiting) power locations. Even though the LTAs will not be placed in "LOCA-limiting" locations, they will be placed in areas where CRUD and oxide formation can be assessed under the elevated pH conditions.

Question 2.c

Does CPSES intend to develop a CPSES-specific operational strategy for cores with ZIRLO from its experience?

Response to Question 2.c

ZIRLO™ is already licensed and used extensively in most Westinghouse fueled plants. ZIRLO™ has improved corrosion resistance characteristics compared to Westinghouse Zircaloy-4 clad. If the elevated pH program is implemented, and the expected results of the elevated pH program are realized (due to reduced fuel CRUD formation), plant radiation levels are expected to decline with reduced risk of experiencing the Axial Offset Anomaly (AOA). Therefore, a ZIRLO™ specific operational strategy is not needed; although, operational benefits are expected as explained above.

Question 3

What ZIRLO data will be taken for the LTAs, including fresh before loading, at intervals during operation, and upon discharge of the LTAs after reaching their maximum burnup?

Response to Question 3

If the elevated pH program is implemented in Unit 2 beginning with Cycle 7 as anticipated, clad oxide thickness measurements will be obtained from representative ZIRLO™ assemblies at each outage until discharge to confirm that there is no significant increase in predicted clad corrosion as a result of the elevated pH program. If the elevated pH program is not implemented, then there are no performance-related data required of the lead assemblies, since ZIRLO™ and the Westinghouse Optimized Fuel Assembly (OFA) designs have already been licensed and undergone extensive in-reactor usage at many other Westinghouse fueled plants with no identified issues.

Question 4

What is the maximum burnup that CPSES expects to run the LTAs for?

Response to Question 4

Currently, the maximum burnup of these LTAs is anticipated to remain <60 GWD/MTU.

Question 5

The submittal indicates that TXU has performed preliminary assessments of the LTAs using the TXU LOCA models. Has TXU performed similar assessments of the LTAs for other events? Since TXU intends to put the LTAs in "non-limiting" core locations, has TXU assessed whether the LTAs could become limiting for cooldown events, such as main steamline breaks, or reactivity insertions, such as rod withdrawal events?

Response to Question 5

The fuel clad parameters that affect the accident analysis models are the thermal conductivity, heat capacitance, and density. Because the differences in these parameters between ZIRLO™ clad and Zircaloy-4 clad are minimal, the use of ZIRLO™ clad has virtually no effect on any of the non-LOCA accident analyses. The topical reports describing the LOCA methodologies were revised because the material changes potentially affect the clad burst and cladding creep and growth characteristics. Clad burst and cladding creep and growth characteristics are not relevant for the non-LOCA accident analyses. The ZIRLO™-clad fuel will be analyzed with the same non-LOCA methodologies as the Zircaloy-4 clad fuel and will be shown to meet the same specified acceptable fuel design limits.

Question 6

The WCAP-12610, Appendices F&G, SER states that ZIRLO fuel may be analyzed without a mixed fuel penalty if the ZIRLO fuel and the resident fuel are of like features (i.e. geometry). This finding did not remove the need to evaluate each fuel separately, but it did remove the associated mixed core penalty(s). This is also likely true for DNB analyses. It is not clear from the submittal whether the LTA is of like geometry to the resident fuel. Please clarify.

Response to Question 6

With the exception of ZIRLO™ instead of Zircaloy-4, the LTA fuel assembly design is essentially the same as the Westinghouse Optimized Fuel Assembly (OFA) design already used at CPSES in the first Unit 2 reload. These OFA assemblies were also resident in the core during the transition to fuel assemblies provided by a different vendor (now known as Framatome ANP). The mixed core effects on the DNB analyses were explicitly modeled in accordance with the approved TXU Generation Company LP methodologies.