



TXU Energy
Comanche Peak Steam
Electric Station
P.O. Box 1002 (E01)
Glen Rose, TX 76043
Tel: 254 897 5209
Fax: 254 897 6652
mike.blevins@txu.com

Mike Blevins
Senior Vice President & Principal Nuclear Officer

Ref: 10CFR50.73(a)(2)(i)(B)

CPSES-200401209
Log # TXX-04080

April 27, 2004

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
CONDITION PROHIBITED BY TECHNICAL SPECIFICATIONS
LICENSEE EVENT REPORT 445/04-001-00

Gentlemen:

Enclosed is Licensee Event Report (LER) 04-001-00 for Comanche Peak Steam Electric Station Units 1 and 2, " Fuel Assembly Placed in Incorrect Storage Location."

This communication contains the following new licensing basis commitments regarding CPSES Units 1 and 2.

<u>Commitment No.</u>	<u>Description</u>
27312	Core Performance Engineering will develop and implement a plan to validate critical data bases used in the control of Spent Fuel Pool storage.
27313	Procedural guidance on preparing, reviewing and conducting the surveillance for Technical Specification 3.7.17 will be developed and will require independent verification checks.

The commitment number is used by TXU Generation Company LP for the internal tracking of CPSES commitments.

A member of the **STARS** (Strategic Teaming and Resource Sharing) Alliance

Callaway • Comanche Peak • Diablo Canyon • Palo Verde • South Texas Project • Wolf Creek

IE22

TXX-04080

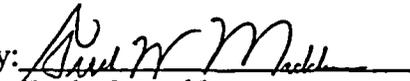
Page 2 of 2

Sincerely,

TXU Generation Company LP

By: TXU Generation Management Company LLC,
Its General Partner

Mike Blevins

By: 
Fred W. Madden
Manager Regulatory Affairs

JDS/js

Enclosure

c - B. S. Mallett, Region IV
W. D. Johnson, Region IV
M. C. Thadani, NRR
Resident Inspectors, CPSES

LICENSEE EVENT REPORT (LER)

Estimated burden per response to comply with this mandatory information collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjsl@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

Facility Name (1) COMANCHE PEAK STEAM ELECTRIC STATION UNIT 1	Docket Number (2) 05000445	Page (3) 1 OF 7
---	--------------------------------------	---------------------------

Title (4)
CONDITION PROHIBITED BY TECHNICAL SPECIFICATIONS

Event Date (5)			LER Number (6)			Report Date (7)			Other Facilities Involved (8)	
Month	Day	Year	Year	Sequential Number	Revision Number	Month	Day	Year	Facility Name	Docket Numbers
03	03	04	04	001	00	05	03	04	COMANCHE PEAK	05000446 05000

Operating Mode (9)	1	This report is submitted pursuant to the requirements of 10 CFR : (Check all that apply) (11)							
Power Level (10)	100	20.2201(b)	20.2203(a)(3)(i)	50.73(a)(2)(i)(C)	50.73(a)(2)(vii)				
		20.2201(d)	20.2203(a)(3)(ii)	50.73(a)(2)(ii)(A)	50.73(a)(2)(viii)(A)				
		20.2203(a)(1)	20.2203(a)(4)	50.73(a)(2)(ii)(B)	50.73(a)(2)(viii)(B)				
		20.2203(a)(2)(i)	50.36(c)(2)(i)(A)	50.73(a)(2)(iii)	50.73(a)(2)(ix)(A)				
		20.2203(a)(2)(ii)	50.36(c)(1)(ii)(A)	50.73(a)(2)(iv)(A)	50.72(a)(2)(x)				
		20.2203(a)(2)(iii)	50.36(c)(2)	50.73(a)(2)(v)(A)	73.71(a)(4)				
		20.2203(a)(2)(iv)	50.46(a)(3)(ii)	50.73(a)(2)(v)(B)	73.71(a)(5)				
		20.2203(a)(2)(v)	50.73(a)(2)(i)(A)	50.73(a)(2)(v)(C)	OTHER				
		20.2203(a)(2)(vi)	X 50.73(a)(2)(i)(B)	50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A				

Licensee Contact For This LER (12)

Name Mickey Killgore - Reactor Engineering Manager	Telephone Number (Include Area Code) 254-897-0703
--	---

Complete One Line For Each Component Failure Described in This Report (13)

Cause	System	Component	Manufacturer	Reportable To EPIX	Cause	System	Component	Manufacturer	Reportable To EPIX
				N					

Supplemental Report Expected (14)

YES (If YES, complete EXPECTED SUBMISSION DATE)	X	NO	EXPECTED SUBMISSION DATE (15)	Month	Day	Year
--	---	----	-------------------------------	-------	-----	------

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On March 3, 2004, Core Performance Engineering performed a complete verification of fuel assembly configurations in the spent fuel pool. At 1110, it was discovered that fuel assembly C45 was stored in an unacceptable "4 out of 4" configuration which violated Technical Specification (TS) 3.7.17. TS 3.7.17 requires specific fuel assembly storage configurations in Region II racks based on the combination of initial enrichment and burnup of each fuel assembly. The control room was immediately notified, Shift Operations immediately initiated actions in accordance with TS Action Statements, and moved fuel assembly C45 from the Region II to the Region I racks where TS 3.7.17 is not applicable.

TXU Generation Company LP (TXU Energy) believes that the cause of the event was an incorrect burnup value calculated for fuel assembly C45 which was used in determining the Region II allowable storage configuration. The incorrect burnup value resulted from inadequate conversion of the data files during a computer code migration in 1998.

All times in this report are approximate and Central Standard Time unless noted otherwise.

LICENSEE EVENT REPORT (LER)

Facility Name (1) COMANCHE PEAK STEAM ELECTRIC STATION UNIT 1	Docket 05000445	LER Number (6)			Page(3) 2 OF 7
		Year 04	Sequential Number 001	Revision Number 00	

NARRATIVE (If more space is required, use additional copies of NRC Form 366A) (17)

I. DESCRIPTION OF REPORTABLE EVENT**A. REPORTABLE EVENT CLASSIFICATION**

Any operation or condition prohibited by the plant's Technical Specifications.

B. PLANT OPERATING CONDITIONS PRIOR TO THE EVENT

On March 3, 2004, Comanche Peak Steam Electric Station (CPSSES) Unit 1 was in Mode 1, Power Operation, operating at 100 percent power and CPSSES Unit 2 was in Mode 1, Power Operation, operating at 99.1 percent power.

C. STATUS OF STRUCTURES, SYSTEMS, OR COMPONENTS THAT WERE INOPERABLE AT THE START OF THE EVENT AND THAT CONTRIBUTED TO THE EVENT

There were no inoperable structures, systems, or components that contributed to the event.

D. NARRATIVE SUMMARY OF THE EVENT, INCLUDING DATES AND APPROXIMATE TIMES

In November 1992, at end of Unit 1 Cycle 2, fuel assembly C45 was off-loaded and stored in the Spent Fuel Pool (SFP). In April 1998, fuel assembly C45 was reloaded in the Unit 1 core as a center assembly for Cycle 7. From the BURNUP code, the fuel assembly burnup at the beginning of this cycle was 16275 MWD/MTU. BURNUP is the approved source of fuel assembly burnup. BURNUP is run monthly and at the end of each cycle and uses flux map information along with other data to calculate fuel assembly burnup.

LICENSEE EVENT REPORT (LER)

Facility Name (1) COMANCHE PEAK STEAM ELECTRIC STATION UNIT 1	Docket 05000445	LER Number (6)			Page(3) 3 OF 7
		Year 04	Sequential Number 001	Revision Number 00	

NARRATIVE (If more space is required, use additional copies of NRC Form 366A) (17)

In April 1998, CPSES procured and adopted the ABB Combustion Engineering Nuclear Fuel Accountability System (NFAS) to support tracking fuel and other Special Nuclear Materials components, providing a historical repository for fuel-related movement and isotopic data, and generating the NRC Form 741, NRC Form 742, and NRC Form 742C report(s). NFAS uses the fuel assembly burnups and isotopic concentrations calculated by the BURNUP code as input in addition to the historical data stored in an important electronic file, PRIOR_BURNUP. NFAS was tested at the ABB Windsor site to validate all modifications made to the software for customization and to validate the initialization (i.e, database loading from TXU files) of the database. However, it is unclear from validation documentation if the PRIOR_BURNUP values were populated and tested. Upon receipt and in accordance with approved software Quality Assurance procedures, TXU personnel executed the Function Test Procedure provided by the vendor to ensure that the software performed as expected. However, the Functional Test Procedures would not have validated the integrity of the PRIOR_BURNUP data file. It is believed that the PRIOR_BURNUP data file was incorrectly populated.

In October 1999, fuel assembly C45 was discharged from Unit 1 Cycle 7 and stored in the SFP low density rack. From BURNUP, the correct burnup at the end of the cycle was 35102 MWD/MTU.

In April 2000, a Special Condition Surveillance was performed by Core Performance engineering personnel (utility, non-licensed) for preparation of a fuel shuffle into the Region II racks. A NFAS "Fuel Assembly/ICA Isotopic Inventory" report was used for initial U-235 enrichment and fuel assembly burnup. The NFAS code functioned as designed. However, because the electronic file PRIOR_BURNUP had been incorrectly populated during the original implementation of NFAS, the code calculated and reported an incorrect burnup value (51377 MWD/MTU) for fuel assembly C45. The isotopic quantities and enrichments were correct. An independent review of the surveillance was performed, but the erroneous burnup value was not identified. There was no specific procedural guidance for preparing, reviewing, and conducting the Special Condition Surveillance.

In May 2001, a Special Condition Surveillance was performed using the validated computer code HDSL (High Density Storage Location). This code package was developed "in-house" to track the implementation of the new TS 3.7.17 requirements associated with the installation of new spent fuel pool storage racks, and used the fuel assembly burnup from NFAS as an input. No documented verification of the HDSL input or results has been found. Based on the incorrect NFAS burnup of 51377 MWD/MTU, HDSL indicated that fuel assembly C45 was allowed in a "4 out of 4" storage configuration.

LICENSEE EVENT REPORT (LER)

Facility Name (1) COMANCHE PEAK STEAM ELECTRIC STATION UNIT 1	Docket 05000445	LER Number (6)			Page(3) 4 OF 7
		Year 04	Sequential Number 001	Revision Number 00	

NARRATIVE (If more space is required, use additional copies of NRC Form 366A) (17)

On June 25, 2001, fuel assembly C45 was moved into a "4 out of 4" storage configuration. The data base error from 1998 went undetected throughout this, and all subsequent, surveillances until 2004.

On March 2, 2004, Core Performance Engineering personnel were reviewing discharged fuel assembly inventory to identify candidates for use in future core designs and noticed discrepancies between informal engineering notes and the electronic files which were being reviewed. Errors in the electronic data files were identified.

On March 3, 2004, Core Performance Engineering performed a complete verification of fuel assembly configurations in the SFP. At 1110, Core Performance Engineering personnel (utility, non-licensed) discovered that fuel assembly C45 was stored in an unacceptable "4 out of 4" configuration which violated TS 3.7.17 and notified the control room. At 1516, Shift Operations (utility, licensed) moved the fuel assembly to an acceptable configuration. The LCO was exited on March 3, 2004 at 1516.

E. THE METHOD OF DISCOVERY OF EACH COMPONENT OR SYSTEM FAILURE, OR PROCEDURAL OR PERSONNEL ERROR

While reviewing discharged fuel assembly inventory to identify candidates for use in future core designs, errors in electronic data files were identified. Core Performance Engineering personnel (utility, non-licensed) performed a complete verification of fuel assembly configurations in the SFP and discovered that fuel assembly C45 was stored in an unacceptable "4 out of 4" configuration.

II. COMPONENT OR SYSTEM FAILURES

A. FAILURE MODE, MECHANISM, AND EFFECTS OF EACH FAILED COMPONENT

Not applicable – No component failures were identified during this event.

B. CAUSE OF EACH COMPONENT OR SYSTEM FAILURE

Not applicable – No component or system failures were identified during this event.

C. SYSTEMS OR SECONDARY FUNCTIONS THAT WERE AFFECTED BY FAILURE OF COMPONENTS WITH MULTIPLE FUNCTIONS

Not applicable – No component failures were identified during this event.

LICENSEE EVENT REPORT (LER)

Facility Name (1) COMANCHE PEAK STEAM ELECTRIC STATION UNIT 1	Docket 05000445	LER Number (6)			Page(3) 5 OF 7
		Year 04	Sequential Number 001	Revision Number 00	

NARRATIVE (If more space is required, use additional copies of NRC Form 366A) (17)

D. FAILED COMPONENT INFORMATION

Not applicable – No component failures were identified during this event.

III. ANALYSIS OF THE EVENT**A. SAFETY SYSTEM RESPONSES THAT OCCURRED**

Not applicable – No safety system responses occurred as a result of this event.

B. DURATION OF SAFETY SYSTEM TRAIN INOPERABILITY

Not applicable – No safety system train inoperability occurred as a result of this event.

C. SAFETY CONSEQUENCES AND IMPLICATIONS

CPSES has a common Fuel Building for storage and transfer of new and spent fuel. Two pools are provided for CPSES spent fuel storage. Each pool has Region I and Region II storage positions. The storage configurations of Region II (i.e., High Density) racks are restricted based on the fuel assembly initial enrichment and discharge burnup. Region II racks can accommodate fuel in "1 out of 4", "2 out of 4", "3 out of 4" and "4 out of 4" storage configurations (i.e., checkerboard patterns). Soluble boron is credited for maintaining the reactivity of the array of stored spent fuel assemblies within licensing limits when spent fuel assemblies are stored in the "3 out of 4" and "4 out of 4" configurations. Upon discovery of fuel assembly C45 in an incorrect (4 out of 4) storage configuration, immediate steps were taken to move the assembly to an acceptable configuration, as required by the Action Statements in TS 3.7.17.

The event is bounded by the analyzed accident scenario of a single fresh assembly misloaded at maximum allowable enrichment into a cell for which the restriction on location, enrichment, or burnup is not satisfied. The analysis determined that a total of 1900 ppm soluble boron would be sufficient to meet the K_{eff} licensing limit of 0.95 (described in FSAR Sections 3.1.6.3 and 4.3.1.5, as well as the Bases for Technical Specifications 3.7.16 and 3.7.17). During the time in which assembly C45 was incorrectly stored, the spent fuel pool boron concentration remained above the required limit of 2000 ppm specified in Technical Specification 3.7.16. There were no safety system functional failures associated with this event.

Based on the above, it is concluded that the event of March 3, 2004, did not adversely affect the safe operation of CPSES or the health and safety of the public.

LICENSEE EVENT REPORT (LER)

Facility Name (1) COMANCHE PEAK STEAM ELECTRIC STATION UNIT 1	Docket 05000445	LER Number (6)			Page(3) 6 OF 7
		Year 04	Sequential Number 001	Revision Number 00	

NARRATIVE (If more space is required, use additional copies of NRC Form 366A) (17)

IV. CAUSE OF THE EVENT

In April 1998, CPSES procured and adopted ABB Combustion Engineering Nuclear Fuel Accountability System (NFAS) to support Core Performance in tracking fuel and other Special Nuclear Materials components, providing a historical repository for fuel-related movement and isotopic data, and generating the NRC Form 741, NRC Form 742, and NRC Form 742C report(s).

NFAS was tested at the ABB Windsor site to validate all modifications made to the software for customization and to validate the initialization (i.e., database loading from CPSES files) of the database. Functional Test Procedures provided by the vendor, and executed with the CPSES installation were used to conclude that the CPSES installed version of NFAS had been demonstrated to function properly and provide accurate results. However, TXU Energy believes that during the NFAS implementation, the PRIOR BURNUP data file was not correctly populated. The Functional Test Procedures would not have detected this error. Hence, NFAS incorrectly reported the fuel assembly C45 discharge burnup which was used in determining the Region II allowable storage configuration. In addition, procedural guidance on preparing, reviewing and conducting the TS 3.7.17 surveillance was not established.

V. CORRECTIVE ACTIONS

Upon discovery, Shift Operations immediately initiated actions in accordance with TS Action Statements to move fuel assembly C45 from the Region II "4 out of 4" configuration to the Region I racks where TS 3.7.17 is not applicable.

Core Performance Engineering performed a complete verification of fuel assembly configurations in the Spent Fuel Pools using approved and validated data sources independent of HDSL and NFAS. During this effort, several discrepancies in fuel assemblies other than fuel assembly C45 were identified. Core Performance Engineering reviewed TS 3.7.17 criteria with the correct values and concluded that the affected fuel assemblies, other than C45, were acceptable in their existing storage configuration.

In accordance with approved software Quality Assurance procedures, Core Performance Engineering will develop and implement a plan to validate critical data bases used in the control of SPF storage. In addition, procedural guidance on preparing, reviewing and conducting the surveillance for TS 3.7.17 will be developed and will require independent verification checks.

LICENSEE EVENT REPORT (LER)

Facility Name (1) COMANCHE PEAK STEAM ELECTRIC STATION UNIT 1	Docket 05000445	LER Number (6)			Page(3) 7 OF 7
		Year 04	Sequential Number 001	Revision Number 00	

NARRATIVE (If more space is required, use additional copies of NRC Form 366A) (17)

VI. PREVIOUS SIMILAR EVENTS

There have been no previous similar events where fuel assemblies have been stored in the incorrect location within the spent fuel pool.