



Log # TXX-99137
File # 10200
Ref. # 10CFR50.73(a)(2)(i)(B)

June 10, 1999

C. Lance Terry
*Senior Vice President
& Principal Nuclear Officer*

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

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION (CPSES)
DOCKET NO. 50-445
CONDITIONS PROHIBITED BY TECHNICAL SPECIFICATIONS
LICENSEE EVENT REPORT 445/99-003-00

- REF: 1. TXU Electric letter logged, TXX-99131 from C. L. Terry to the NRC dated May 26, 1999
2. TXU Electric letter logged, TXX-99133 from C. L. Terry to the NRC dated May 27, 1999
3. TXU Electric letter logged, TXX-99135 from C. L. Terry to the NRC dated May 28, 1999

Enclosed is Licensee Event Report (LER) 99-003-00 for Comanche Peak Steam Electric Station Unit 1, " Unit 1 Battery Surveillances Were Not Performed with the Proper Periodicity as Required by the Plants Technical Specifications ."

There are no new licensing based commitments in this communication which have already not been discussed via Reference 1, 2 and 3.

Sincerely,

C. L. Terry
C. L. Terry

By:

Roger C. Walker
Roger C. Walker
Regulatory Affairs Manager

9906150218 990610
PDR ADOCK 05000445
S PDR

OB/ob
Enclosure

cc: Mr. E. W. Merschoff, Region IV
Mr. J. I. Tapia, Region IV
Resident Inspectors, CPSES
COMANCHE PEAK STEAM ELECTRIC STATION
P.O. Box 1002 Glen Rose, Texas 76043-1002

NRC FORM 366
(4-95)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 4/30/98

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

Facility Name (1)

COMANCHE PEAK STEAM ELECTRIC STATION UNIT 1

Docket Number (2)

05000445

Page (3)

1 OF 6

Title (4)

UNIT 1 BATTERY SURVEILLANCES WERE NOT PERFORMED WITH THE PROPER PERIODICITY AS REQUIRED BY THE PLANTS 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							
0	5	1	9	9	9	9	9	9	CPSES UNIT 2			0	5	0	0	0	4	4	6
									N/A			0	5	0	0	0			

Operating Mode (9)	1	This report is submitted pursuant to the requirements of 10 CFR 4. (Check one or more) (11)																	
Power Level (10)	100	<input type="checkbox"/> 20.2201 (b)	<input type="checkbox"/> 20.2203 (a) (2) (v)	<input checked="" type="checkbox"/> 50.73 (a) (2) (i)	<input type="checkbox"/> 50.73 (a) (2) (vii)														
		<input type="checkbox"/> 20.2203 (a) (1)	<input type="checkbox"/> 20.2203 (a) (3) (i)	<input type="checkbox"/> 50.73 (a) (2) (ii)	<input type="checkbox"/> 50.73 (a) (2) (x)														
		<input type="checkbox"/> 20.2203 (a) (2) (i)	<input type="checkbox"/> 20.2203 (a) (3) (ii)	<input type="checkbox"/> 50.73 (a) (2) (iii)	73.71														
		<input type="checkbox"/> 20.2203 (a) (2) (ii)	<input type="checkbox"/> 20.2203 (a) (4)	<input type="checkbox"/> 50.73 (a) (2) (iv)	<input type="checkbox"/> OTHER														
		<input type="checkbox"/> 20.2203 (a) (2) (iii)	<input type="checkbox"/> 50.36 (c) (1)	<input type="checkbox"/> 50.73 (a) (2) (v)	Specify in Abstract below or in NRC Form 365A														
		<input type="checkbox"/> 20.2203 (a) (2) (iv)	<input type="checkbox"/> 50.36 (c) (2)	<input type="checkbox"/> 50.73 (a) (2) (vi)															

Licensee Contact For This LER (12)

Name	Mitchell L. Lucas - Maintenance Manager	Telephone Number (include Area Code)	(254)897-6731
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Complete One Line For Each Component Failure Described in This Report (13)

Cause	System	Component	Manufacturer	Reportable To NPRDS	Cause	System	Component	Manufacturer	Reportable To NPRDS
				N					

Supplemental Report Expected (14)

YES (If yes, completed EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/>	NO	EXPECTED SUBMISSION DATE (15)	Month	Day	Year
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

Comanche Peak Steam Electric Station (CPSES) Technical Specification(TS) section 4.8.2.1d requires that the 125V D.C. station batteries be demonstrated operable by performing a battery service test at least once per 18 months, during shutdown. Surveillance Requirement (SR) 4.8.2.1e, states that a battery performance discharge test is allowed in lieu of the service test once per 60 month interval. For Unit 1 battery BT1ED2, the performance discharge test was incorrectly used twice within a 60 month interval in lieu of the service test. In accordance with Surveillance Requirement 4.0.3, this failure to perform the Surveillance Requirement constituted a noncompliance with the operability requirements for the Limiting Condition of Operation (LCO).

On May 19,1999, during the process of conducting reviews of battery surveillances, CPSES discovered that credit had been taken for the performance of a battery performance discharge test in lieu of a service test more frequently than is permitted by SR 4.8.2.1e. TXU Electric believes that crediting the performance discharge test in 1RFO6 (Unit 1 sixth refueling outage) was acceptable and that compliance with the requirements of SR 4.8.2.1d for battery BT1ED2 was re-established by the performance of that test. However, due to the ambiguity of the situation TXU Electric has conservatively chosen to consider that the surveillance is not current.

Immediate actions were to enter the appropriate LCO, A Notice of Enforcement Discretion (NOED) was requested via Reference 1 and a one time licence amendment request has been submitted via Reference 2 and 3.

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

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

Any operation prohibited by the plant's Technical Specification (10CFR50.73(a)(2)(i)(B)).

B. PLANT OPERATING CONDITIONS PRIOR TO THE EVENT

At time of discovery, on May 19, 1999, Comanche Peak Steam Electric Station (CPSES) Unit 1 was in Mode 1, Power Operations. Additionally, CPSES Unit 2 was in Mode 1, Power Operations.

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

Not Applicable - No other structures, systems or components that were inoperable contributed to the event.

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

Comanche Peak Technical Specification Surveillance Requirement (SR) 4.8.2.1d requires that the 125V D.C. station batteries be demonstrated operable by performing a battery service test at least once per 18 months, during shutdown. Surveillance Requirement 4.8.2.1e, states that a battery performance discharge test is allowed in lieu of the service test once per 60 month interval. For Unit 1 battery BT1ED2, the performance discharge test was incorrectly used twice within a 60 month interval in lieu of the service test. In accordance with Surveillance Requirement 4.0.3, this failure to perform the Surveillance Requirement would constitute a noncompliance with the operability requirements for the LCO.

On May 19, 1999, during the process of conducting reviews of battery surveillances, a systems engineer (utility, nonlicensed) discovered that credit had been taken for the performance of a battery performance discharge test in lieu of a service test more frequently than is permitted by SR 4.8.2.1e.

Until the battery has reached 85 percent of its service life, a performance discharge test is only required once per 60 months (per SR 4.8.2.1e). SR 4.8.2.1e permits the substitution of this performance discharge test for the SR 4.8.2.1d required service test once per 60 month interval. Generally that means that each required performance discharge test could be substituted for a required service test. However, if the battery is considered degraded or after 85 percent of its service life, performance discharge tests of the battery are required on an 18 month frequency per SR 4.8.2.1f. Battery BT1ED2 reached 85 percent of its service life in April 1996 just prior to 1RF05 (Unit 1 fifth refueling outage). A performance discharge test was conducted per SR 4.8.2.1f in 1RF05. It was assumed that each performance discharge test could be credited for a service test. Similarly, a performance discharge was substituted for a service test in 1RF06. Since SR 4.8.2.1e permits substitution only once per

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60 months test interval, and since 1RFO5 and 1RFO6 are in the same 60 month interval, this substitution was not valid. The invalidity of the substitution was not recognized at the time.

TXU Electric believes that crediting the performance discharge test in 1RFO6 was acceptable and crediting the performance discharge testing in 1RFO5 was invalid. Thus, compliance with the requirements of SR 4.8.2.1d for battery BT1ED2 was re-established by the performance of that test in 1RFO6. However, due to the ambiguity of the situation we have conservatively chosen to consider that the surveillance is not current. This placed the plant in a condition prohibited by Plant Technical Specification and therefore is conservatively reportable pursuant to the requirements of 10CFR50.73(a)(2)(i)(B).

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

On May 19, 1999, during the process of conducting reviews of battery surveillances, a systems engineer (utility, nonlicensed) discovered that credit had been taken for the performance of a battery performance discharge test in lieu of a service test more frequently than is permitted by SR 4.8.2.1e..

II. COMPONENT OR SYSTEM FAILURES

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

Not Applicable - No failure mode, mechanism, and effects of each component are applicable.

B. DURATION OF SAFETY SYSTEM TRAIN INOPERABILITY

Not Applicable - No safety system train inoperability was determined.

C. SAFETY CONSEQUENCES AND IMPLICATIONS

The safety function of the batteries is to automatically pick up required DC loads in the event of loss of normal power to the battery chargers. The service test and the performance discharge test surveillances provide assurance that the batteries are capable of performing their safety function. The battery service test is a special test of battery capability to satisfy the design requirements (battery duty cycle) of the DC electrical power system. The discharge rate and test length correspond to the design duty cycle requirements as specified in the FSAR. The battery performance discharge test is a test of battery capacity performed to an 8 hour discharge rate as specified by the manufacturer, and is intended to determine overall battery capacity and battery degradation due to age and usage. The performance discharge test is generally considered a more severe test of battery capacity than the service test because it removes more ampere-hours. Partially because of this it is allowed to be substituted for the service test once per 60 month interval. However, the service test has higher short term ampere requirements and thus the performance discharge test does not completely envelope the service test requirements.

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The batteries are designed with sufficient margin to ensure that they are capable of powering their required loads throughout the design life of the batteries. The batteries are normally replaced when the capacity of the battery based on the performance discharge test approaches 80 percent. While the performance discharge test does not specifically test at the higher ampere rating of the service test, it would be expected that if the battery were to develop problems associated with the ability to provide those higher ampere ratings, it would be more likely to occur near the end of service life of the battery (i.e., 80 percent capacity). The performance discharge test capacities of battery BT1ED2 were 97.2 percent and 95.4 percent for 1RF05 and 1RF06 respectively. With the available capacity margins indicated by these results the battery would certainly have passed a service test. In addition, during the service test the battery voltage is monitored. The margin between the recorded end of test voltage and the minimum required voltage provides an indication of the ability of the battery to sustain some degradation (e.g., normal battery aging) and still meet the service test current requirements. The last service test performed on BT1ED2 was during unit 1 fourth refueling outage (1RFO4). For that test the battery's end of test voltage was 115.3V compared to a minimum required 105V. The end of test voltage for an earlier service test conducted during the Unit 1 second refueling outage (1RFO2) was 115.6V. The large margin (10.3V) between minimum required voltage and the end of test voltage for the service test in 1RFO4 and the small degradation in end of test voltages between 1RFO2 and 1RFO4 (0.3V) provides additional confidence that the battery would have passed service tests if they had been performed in 1RFO5 or 1RFO6.

TXU Electric believes that crediting the performance discharge test in lieu of the required service test is an acceptable alternative to requiring a Unit 1 shutdown to perform the missed surveillance.

Based upon the results of a Probabilistic Risk Assessment (PRA) evaluation, even using conservative assumptions with respect to the battery reliability, it is concluded that the change in risk can be considered to be non-risk significant.

Based on this evaluation, it is concluded that the health and safety of the public would not have been affected by the conditions described above.

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III. CAUSE OF THE EVENT

It was ascertained that until the battery has reached 85 percent of its service life, a performance discharge test is only required once per 60 months (per SR 4.8.2.1e). SR 4.8.2.1e permits the substitution of this performance discharge test for the SR 4.8.2.1d required service test once per 60 month interval. Generally that means that each required performance discharge test could be substituted for a required service test. However, if the battery is considered degraded or after 85 percent of its service life, performance discharge tests of the battery are required on an 18 month frequency per SR 4.8.2.1f. Battery BT1ED2 reached 85 percent of its service life in April 1996 just prior to 1RFO5. A performance discharge test was conducted per SR 4.8.2.1f in 1RFO5. It was assumed that each performance discharge test could be credited for a service test. Similarly, a performance discharge was substituted for a service test in 1RFO6. Since SR 4.8.2.1e permits substitution only once per 60 months test interval, and since 1RFO5 and 1RFO6 are in the same 60 month interval, this substitution was not valid. The invalidity of the substitution was not recognized at the time.

TXU Electric believes that crediting the performance discharge test in 1RFO6 was acceptable and crediting the performance discharge testing in 1RFO5 was invalid. Thus, compliance with the requirements of SR 4.8.2.1d for battery BT1ED2 was re-established by the performance of that test in 1RFO6. However, due to the ambiguity of the situation TXU Electric has conservatively chosen to consider that the surveillance is not current.

IV. CORRECTIVE ACTIONS

An engineering evaluation was performed, based on data available from the recent performance discharge tests (e.g., battery parameters such as connection resistances and individual cell voltages). A comparison of cell connection resistance readings and cell voltage readings for BT1ED2 was made.

The resistance data was taken from battery connection resistance surveillance tests performed in 1RFO4, 1RFO5, and 1RFO6. The resistance readings show no overall signs of degradation. The resistance readings of each intercell connector and interconnecting cables are taken and must be within tolerance. Connections that are not within tolerance must be reworked. The data from the above tests shows that very few connections have required rework. Four connections required rework during 1RFO4, three during 1RFO5, and two during 1RFO6. Where rework was required, the deviations were insignificant when compared to overall resistances and were well below Technical Specification limitations for individual cell readings. Specifically, for the two 1RFO6 out of tolerance readings, the acceptance criteria were 28 and 41 micro-ohms. The as-found readings were 30 and 44 micro-ohms respectively. The as-left readings were 19 and 40 micro-ohms respectively. Weekly visual inspections, which include inspections for cleanliness and connection corrosion, are performed. Corrective actions are taken on any problems found. These inspections help to ensure that connections are not degrading between discharge tests.

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A comparison of cell voltages between the service test conducted in 1RFO4 and the discharge performance test conducted in 1RFO6 was made. The individual cell voltage readings at the end of the service test during 1RFO4 were all in the range of 1.89 to 1.93 volts. The individual cell voltage readings at similar points in the performance discharge test (based on total amp-hour discharge) during 1RFO6 ranged from 1.89 to 1.91 volts.

In addition, the SR 4.8.2.1b.2) inspection for visible corrosion of battery terminals and connectors was completed on April 28, 1999. The inspection found no evidence of corrosion.

These factors give reasonable assurance that the resistances of the battery connections and the individual cell performances are such that the battery would be capable of delivering the required current and voltage to power the loads on the battery.

Nonetheless, a NOED was requested from the NRC via Reference 1. In response to Reference 1, the NRC via a letter to Mr. C. Lance Terry, dated June 2, 1999¹, exercised its discretion not to enforce compliance with TS 4.8.2.1d until the issuance of a license amendment requested via a separate license amendment request (LAR) which was submitted via Reference 2 and 3. This LAR requested a one time exception to allow crediting the battery performance discharge test in lieu of the required service test. This one time exception will expire prior to entry into MODE 4 following the next Unit 1 outage of sufficient duration to perform a service test.

V. PREVIOUS SIMILAR EVENTS

There have been no other events which involve CPSES batteries. There have been other missed surveillances; however, the causes of these events were sufficiently different such that the corrective action for these events would have not precluded the May 19, 1999 event.

1. TAC Nos. MA5524 and MA5525, NOED NO. 99-06-05