

Log # TXX-92326 File # 10200

Ref. # 10CFR50.73(a)(2)(1)

July 16, 1992

William J. Cabill, Jr. Group Vive President

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

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION (CPSES)

DOCKET NO. 50-445

CONDITION PROHIBITED BY TECHNICAL SPECIFICATIONS

LICENSEE EVENT REPORT 92-015-00

Gentlemen:

Enclosed is Licensee Event Report (LER) 92-015-00 for Comanche Peak Steam Electric Station Unit 1, "Personnel Error Leading to Potential Inoperability of Blackout Sequencer".

Per telephone conversation Mr. R. D. Walker requested an extention for the subject LER on July 9, 1992 The extension was granted till July 17, 1992 by Mr. L. A. Yandell.

Sincerely.

William J. Cahilly

y: 27 046

Royer D. Walker

Manager of Regulatory Affairs

for NEO

OB/tg

c - Mr. J. L. Milhoan, Region IV Resident Inspectors, CPSES (2)

9207200109 920716 PDR ADOCK 05000445 1622

LICENSEE EVENT REPORT (LER)						APPROVED OMB NO. 3150-0104 EXPIRES: 4/30/92 ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC. 20555, AND TO THE PAPERWORK REGULCTION PROJECT (3150-0104). OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, PO. 20503.													
Facility N		10		- 414 114	1175							umber (2)		1 . 1 .	1		Pag	(3)	
Title (4)				EAK - UI			-	the age of the last			1015	to embassa Misse above	010	1414	15		OF COL	10	18
				L ERRO SEQUE			DING	TC	PO'	TENTIA	L INOI	PERA	BILIT	TY OF T	HE				
Event D	iste (5)			ER Number (6)		rision	Res	ort Date	(2)	and the same of the same of			er Facilitie	es Invalved (8)	-	100 mm. 100 mm.			
Month C	Day You	17	Year	Sequential Number	Nur	mber	Month	Day	Year		Facility Nar	mes.		015	700.00	10	101		
016 1	10 9	2	912-	0 1 5 is submitted pur	-0	10	017	117	912	Charle data to the	N/A	Showing 711		015	10	10	101		L
Made (9) Sower Level (10)	110	0	20.405 20.405 20.405 20.405 20.405	(b)	HX	20.400 50.360 50.360 50.730 50.730	5(a) (a)(1) (c)(2) (a)(2)(i) (a)(2)(ii) (a)(2)(iii)			50.73(a)(2) 50.73(a)(2) 50.73(a)(2) 50.73(a)(2) 50.73(a)(2) 50.73(a)(2)	(v) v) (vii) vii((A) vii)(B)	73.71(b) 73.71(c) 73.71(d) Other (Specify in Abstract below and in Text NRC Form 366A)							
Name	N. Of STREET, SQUARE, ST.	market an	-		Dec 1000 (000 at 100 at	******	-	icensee	Contact	For Tay LER (1	21	-		Telephor	na Nin	enhar	-		
	BUS	CH	BAUN	<u> </u>		AVON-AVID-LA	NAME AND ADDRESS OF THE PARTY.	the Samuel Street Street	BEEL LEBERT OF BUILD	UPERV	of the control of	181	Code 1 1 7	T	-	*******	151	81	5 <u>  1</u>
Cause	System		Component	Manufactu	167		privible PRDS	T		Cq. 24	System	Compor	-	Manufacture	T	Repor To NP			
	1		11	111					•			11	1	111	T				
	1		11	111								11		1 1 1	T				
-	hh	-					uppleme	ntal Rep	эол Ехрес	rtect (14)		hhh	-	Expected	М	onth	Day	T	Yaar
Name and Address of the Owner, where the Owner, which is the Owner, which is the Owner, where the Owner, which is the Owner	-	ten me	-	brission Date)		enconski	X No	tac lines						Submission Date (15)					L

in October and November of 1992, a design modification was performed on the plant to allow transfer of offsite electrical power from the preferred source to the alternate source without starting the station emergency diesel generators. The modification included a change to the setting of a time delay relay associated with the blackout sequencing circuit, but this portion of the modification was not implemented. The failure to change the time delay setting resulted in a circuit response which could have prevented the blackout sequencer from performing its intended function. The cause of the condition was determined to be personnel error. Corrective action included completion of work and procedure changes to prevent acurrence. A delay in determining reportability of the condition led to protracted processing of this report.

NRC FORM 366A

U.S. NUCLEAR GULATORY COMMISSION

**APPROVED OMB NO. 3150-0104** EXPIRES: 4/00/92

### LICENSEE EVENT REPORT (LER) **TEXT CONTINUATION**

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-500), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON. DC. 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104). OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC. 20603.

LER Number (6) Facility Name (1) Docket Number (2) Year COMANCHE PEAK - UNIT 1 0 1 5 1 0 1 0 1 0 1 4 1 4 1 5 9 12

#### DESCRIPTION OF THE REPORTABLE EVENT

#### REPORTABLE EVENT CLASSIFICATION

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

#### PLANT CONDITIONS PRIOR TO THE EVENT

On June 10, 1992, Comanche Peak Steam Electric Station (CPSES) Unit 1 was in Mode 1, Power Operation, with the reactor at approximately 100 percent of rated thermal 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.

#### NARRATIVE SUMMARY OF THE EVENT, INCLUDING DATES AND APPROXIMATE TIMES

In February, 1990, a plant design modification was initiated to allow transfer of offsite electrical power from the preferred source to the alternate source without starting the station emergency diesel generators (EDG)(EIIS:(DG)(EK)). The design modification was intended to decrease the number of EDG autostarts resulting from loss of the preferred offsite source during adverse weather conditions.

The design modification was implemented in October and November, 1991, during the first refueling outage, except for a change to the setting of a time delay relay (EIIS:(2)(JE)) associated with the blackout sequencing circuit(EIIS:(JE)). The failure to change the time delay setting resulted in a circuit response which could have prevented the blackout sequencer from performing its intended function.

	U.S. NUCLEAR REQULATORY COMMISSION VENT REPORT (LER) ONTINUATION	APPROVED OMB NO. 3150-0104 EXPIRES: 4/30/92 ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: SOLD HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE REDURDS AND REPORTS MANAGEMEN' BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON DC. 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104) OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC. 20503.									
Facility Name (1)	Discket Number (2)	LER Number (6) Page (9)									
		Year F Sequential Revision Number									
COMANCHE PEAK - U		1912 - 01115 - 010 013 OF 018									

Following a loss of offsite power, the affected circuitry sequences safety-related loads onto the 6.9kv and 480v safeguards busses (EIIS:(BU)(EB)&(ED)) after power is restored by either the alternate power source or the emergency diesel generators. A relay "race" could have occurred because the undervoltage time delay relays associated with sensing preferred offsite power and for initiating a bus transfer were set at the same values as the undervoltage and time delay relays associated with the sequencer. The time delay of the sequencer is to prevent load sequencing on short duration voltage transients. If the bus transferred from the preferred to the alternate power source faster than the sequencer relay timed out, the sequencer would not sense the bus loss and sequential bus loading would not occur.

With any motor load on a 6.9kv safeguards bus, the operability of the associated sequencer is assured because the motor will briefly maintain bus voltage, allowing a third set of undervoltage/time delay relays to affect the bus transfer. These relays sense the safeguards bus voltage and are set at a lower voltage with a shorter time delay than the relays on preferred offsite power. These must also time out in order for the bus transfer to be completed. This time delay, plus the voltage decay time with a motor running is sufficient to prevent bus transfer until the sequencer relays time out, sensing the bus loss and allowing the circuit to function as desired. Review of the operating logs, however, identified periods when the 6.9kv safeguards busses were not loaded. Operability of the blackout sequencer during those periods cannot be assured.

In the absence of assurance of the operability of the blackout sequencer, the action prescribed on Technical Specification Table 3.3-2, item 11.b is applicable. The action requires for Modes 1, 2, 3 and 4 that the diesel generator associated with the affected train(s) be declared inoperable and the action of Specification 3.8.1.1 be performed. CPSES Technical Specification 3.8.1.1 prescribes the action to be taken upon declaring a diesel generator inoperable: two independent circuits between the offsite transmission network and the onsite Class 1E distribution system (E!!S:(EB)) must be determined to be operable by verifying correct breaker (EIIS:(52)(EB)) alignments within one hour and at least once per 8 hours thereafter.

LICENSEE EVE	APPROVED OMB NO. 3150-0104 EXPIRES: 4/30/92 ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THE INFORMATION COLLECTION REQUEST: 50.0 HRS. FO TWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMEN BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON DC. 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3/150-0104) OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC. 20503.											
Facility Name (1)	Clocket Number (2)		LE	A Nun	riber (f	5)	-	-	I		Page (3	-
		Year	E	Seq	unnitia			Number				
COMANCHE PEAK - UN	T 1 015101010141415	912	-	01	1	5	-	010	101	4	OF	018

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

On June 10, 1992, at approximately 8:00 a.m. CDT, while performing a document review to identify differences between CPSES Unit 1 and Unit 2, an engineer in the Design Engineering Organization discovered that the portion of the design modification affecting the blackout sequencer had not been implemented.

The discovery of this error led to an er gineering review of the condition to determine the impact on operability of the sequencer and a review of the condition against the reportability criteria of 10CFR50.72. The results of those reviews led to the conclusion on June 25, 1992, that the condition is reportable pursuant to 10CFR50.73. The delay in determining reportability of the condition led to protracted processing of this report.

#### II. COMPONENT OR SYSTEM FAILURES

### A. FAILURE MODE, MECHANISM, AND EFFECT OF EACH FAILED COMPONENT

No failed components contributed to this event.

### B. CAUSE OF EACH COMPONENT OR SYSTEM FAILURE

No failed components contributed to this event.

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

No failed components contributed to this event.

#### D. FAILED COMPONENT INFORMATION

No failed components contributed to this event.

NRC FORM 366A

Facility Name (1)

111.

U.S. NUCLEAR REGULATORY COMMISSION

EXPIRES: 4/30/92 ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING

BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P.530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC. 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104). OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC. 20503.

APPROVED OMB NO. 3150-0104

IFVI	COMMONTO

LICENSEE EVENT REPORT (LER)

TEXT CONTINUATION

ER Number (6) Docket Num er (2) Year 015 OF 018 010

COMANCHE PEAK - UNIT 1 0 1 5 1 0 1 0 1 0 1 4 1 4 1 5 9 12

### ANALYSIS OF THE EVENT

#### SAFETY SYSTEM RESPONSES THAT OCCURRED

No safety systems responded, or were expected to respond, during this event.

#### B. DURATION OF SAFETY SYSTEM TRAIN INOPERABILITY

The potential for inoperability has existed since November 25, 1991, when the work order associated with design modification and subsequent testing was statused as complete.

#### C. SAFETY CONSEQUENCES AND IMPLICATIONS OF THE EVENT

The blackout sequencer functions to reload the associated 6.9kv safeguards bus in a pre-established sequence following an undervoltage condition on the bus after the bus has been re-energized from the alternate power source or the emergency diesel generator. Inoperability of the sequencing circuit would result in the failure to load safety related loads onto the associated bus. With any motor load on the bus, the sequencer would have performed as required. With no load running on the bus, the sequencer must be considered inoperable and the diesel generator declared inoperable. The allowable outage time (AOT) for the diesel generator is 72 hours; however, the action requires a surveillance on the offsite power sources to be performed within one hour and at least once per 8 hours thereafter.

A review or station logs was performed to identify any period during which the Station Service Water (SSW) Pumps (EIIS:(P)(KG)) were out of service for greater than one hour while the plant was in Mode 1, 2, 3, or 4. The search revealed three occasions during which one of the SSW Pumps was out of service for greater than one hour. During two of those periods, the operability of the offsite power sources were verified within one hour as required by Technical Specification 3.8.1.1. On March 2, 1992, the Train B SSW Pump was out of service from 9:57 a.m. until 12:04 p.m. During this period the required surveillance was not performed, but the duration of inoperability was well within the AOT. Offsite power sources are known to have been available but not documented in accordance with the required surveillance procedures.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION				APPROVED OMBINO, 3150-0104 EXPIRES: 4/30/92 ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTYON REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMEN BRANCH (P-530), U.S. NUCLEAR REQUILATORY COMMISSION, WASHINGTOI DC. 2055S, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104 OFFICE OF MANAGEMENT AND BURGET, WASHINGTON, DC. 20503.											
Facility Name (1)	Docket Number (2)			LERN	umber	(6)	-	***************************************	T	Page (3)	age (3)				
		Year			equents Number	3		Revision Number			III.				
COMANCHE PEAK - UNIT	1 0 1 5 1 0 1 0 1 0 1 4 1 4 1 5	912	-	0	11	15	-	010	016	OF	018				

The reliability of the offsite power sources was improved as a result of a design modification performed on the switchyard during the first plant refueling outage (refer to LERs 91-019 and 91-021). The improved reliability of offsite power sources and the relatively brief period during which the potential for inoperability existed leads to the conclusion that the condition did not result in an actual threat to the safe operation of CPSES Unit 1 or the health and safety of the pub.

#### IV. CAUSE OF THE EVENT

#### A. ROOT CAUSE

The Electrical Maintenance (EM) organization had overall responsibility for field implementation of the design modification, but did not identify the sequencer timer setpoint change to the Instrument and Control (I&C) organization. EM personnel assumed that the I&C group would identify the required work activity and schedule as appropriate.

#### B. CONTRIBUTING FACTORS

- 1. The I&C organization was responsible for maintaining the sequencer timer, but did not recognize the activity to be within their scope when the operations impact assessment was performed. The sequencer timer appears on a series of drawings depicting components which are, with only a few exceptions, the responsibility of the EM work group. The I&C reviewer incorrectly assumed the EM group had responsibility for all relays because of the series of drawings accompanying or referenced in the design modification package.
- 2. The testing organization did not include the sequencer relays in the list of test requirements associated with the design modification. The list of testing requirements was developed using a preliminary, unapproved set of design change documents which had been provided to the testing organization to allow initial planning. The testing organization did not verify that the most current set of design change documents was being used to finalize completion of the list of testing requirements

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION				APPROVED OMB NO. 3150-0104 EXPIRES: 6/30/92 ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFOHMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMEN BRANCH (P-530), U.S. NUCLEAR RECULATORY COMMISSION, WASHINGTON DC. 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104 OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC. 20503.										
Facility Name (1)	Dacket Number (2)			LERN	iumber	(6)	-	-		Page (3)				
		Year		- 5	equenti Number	ă.		Revision Number						
COMMICHE BEAK - LINIT	1015101010141415	012	-	0	1 1	15	-	010	01	7	OF	018		

- 3. Changes to the design change documents were made by the engineering organization, but the testing group was not advised of those changes. The changes included resetting the sequencer time delay. When the testing organization failed to verify that the most current set of design change documents was being used to finalize completion of the list of testing requirements, the required sequencer time delay test was omitted from the list.
- 4. Personnel in the engineering organization with responsibility for review of the list of testing activities did not recognize the omission of a sequencer time delay test from the list. The engineering organization reviewed the testing activities associated with the design modification to assure completeness and sufficiency, but failed to recognize the absence of a test for the sequencer time delay.

#### V. CORRECTIVE ACTIONS

#### A. IMMEDIATE ACTIONS

- The modification to the sequencer time delay setting was implemented and tested.
- A review was conducted on a sample of other multi-discipline design modifications to determine if a generic problem exists. No additional problems were identified.

#### B. ACTIONS TO PREVENT RECURRENCE

- The design modification process was revised to require designation of a lead organization for each design modification. The lead organization will review the completed documentation to ensure that all associated work is complete and satisfactorily tested and that all work within the scope of the design modification is fully implemented.
- An action was initiated by the maintenance organization to clearly identify the distribution of responsibility for work on various systems and components.

NRC FORM 366A

U.S. NUCLEAR REGULATORY COMMISSION

# LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104 EXPIRES: 4/30/92

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLS OTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC. 20556, AND TO THE PAPERWORK REDUCTION PROJECT (\$150-0104). OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC. 20603.

Facility Name (1)	Docket Number (2)	LER Number (6)	Page (3)			
		Year Sequential Revision Number				
COMANCHE PEAK - UNIT 1		912-01115-010	018 OF 018			
Text (If more space is required, use additional NRC Form 36)			THE RESERVE THE PERSON NAMED IN COLUMN			

- A revision to the design modification process procedure has been initiated to require that all design modifications be reviewed against a checklist developed for this purpose.
- Procedures are being reviewed and will be revised as appropriate to ensure that changes to the design change documents are effectively communicated to the testing organization.

#### VI. PREVIOUS SIMILAR EVENTS

There have been no previous events reported pursuant to 10CFR50.73.