



**Luminant**

**Rafael Flores**  
Senior Vice President  
& Chief Nuclear Officer  
rafael.flores@Luminant.com

**Luminant Power**  
P O Box 1002  
6322 North FM 56  
Glen Rose, TX 76043

**T** 254 897 5550  
**C** 817 559 0403  
**F** 254 897 6652

CP- 201400384  
TXX -14045

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

April 3, 2014

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

**SUBJECT:** COMANCHE PEAK NUCLEAR POWER PLANT (CPNPP)  
DOCKET NO. 50-446  
NON-COMPLIANCE WITH PRESSURE-TEMPERATURE LIMITS REPORT DURING  
RCS VACUUM FILL  
LICENSEE EVENT REPORT 445 / 14-002-00

Dear Sir or Madam:

Enclosed is Licensee Event Report (LER) 445/14-002-00, "Non-Compliance With Pressure-Temperature Limits Report During RCS Vacuum Fill," for Comanche Peak Nuclear Power Plant (CPNPP) Unit 1.

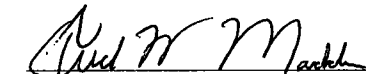
This communication contains no licensing basis commitments regarding CPNPP Units 1 and 2.

Should you have any questions, please contact R. A. Slough at (254) 897-5727.

Sincerely,

Luminant Generation Company LLC

Rafael Flores

By:   
Fred W. Madden  
Director, External Affairs

Enclosure

c - Marc L. Dapas, Region IV  
B. K. Singal, NRR  
Resident Inspectors, Comanche Peak

A member of the STARS Alliance

Callaway · Comanche Peak · Diablo Canyon · Palo Verde · Wolf Creek

IE2 2  
NRR

**LICENSEE EVENT REPORT (LER)**

(See Page 2 for required number of digits/characters for each block)

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@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 an 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.

<b>1. FACILITY NAME</b> Comanche Peak Nuclear Power Plant (CPNPP) Unit 1	<b>2. DOCKET NUMBER</b> <b>05000 445</b>	<b>3. PAGE</b> 1 OF 4
---	---	--------------------------

**4. TITLE**  
Non-Compliance With Pressure-Temperature Limits Report During RCS Vacuum Fill

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
02	04	2014	2014	002	00	04	03	2014	CPNPP Unit 2	05000446
									FACILITY NAME	DOCKET NUMBER

<b>9. OPERATING MODE</b>  1	<b>11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §:</b> <i>(Check all that apply)</i>			
	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)
	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)
<b>10. POWER LEVEL</b>  100	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)
	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)
	<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> OTHER
	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	<input type="checkbox"/> VOLUNTARY LER

**12. LICENSEE CONTACT FOR THIS LER**

FACILITY NAME Timothy A. Hope, Manager, Regulatory Affairs	TELEPHONE NUMBER (Include Area Code) 254-897-6370
---	--

**13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT**

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX

<b>14. SUPPLEMENTAL REPORT EXPECTED</b> <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	<b>15. EXPECTED SUBMISSION DATE</b>	MONTH	DAY	YEAR

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

On February 4, 2014, Luminant Power recognized Operating Experience at another station to be potentially applicable to Comanche Peak Nuclear Power Plant (CPNPP). An NRC inspection report described a failure to comply with reactor coolant system (RCS) Pressure/Temperature (P/T) Limits when RCS pressure decreases below 0 pounds per square inch gage (PSIG). At the time of discovery, CPNPP's Pressure Temperature Limit Report (PTLR) only described pressures equal to or greater than 0 PSIG. However, since early 1996, CPNPP's analyses and procedures allowed drawing a vacuum during RCS refill following refuelings. Therefore, Luminant Power is conservatively reporting RCS pressure below 0 PSIG as a violation of Technical Specification 3.4.3 "RCS Pressure and Temperature (P/T) Limits."

The coordination of the change in RCS operating conditions was less than adequate, in that the associated affected documents were not revised as a result of failing to correctly identify the documents and/or involve all applicable parties, as well as the subtlety of the PTLR pressure value discrepancy. The apparent cause of not maintaining RCS pressure within the limits described in the PTLR was a legacy design implementation error. The apparent mental model by licensed operations personnel was not aligned with the literal applicability of the PTLR curves, in that the curves are applicable during RCS vacuum fill conditions, and not limited to only heat-up, cool-down, and inservice leak/hydrostatic testing conditions. Luminant Power interpreted the PTLR to only apply to RCS pressure conditions above atmospheric pressure, and therefore did not consider it in conflict with the adoption of the vacuum refill analysis and procedure. Corrective actions included revising the PTLR to specify negative 14.7 pounds per square inch gage (PSIG) as the lower limit. The explicit PTLR compliance error during vacuum refill did not adversely affect the health and safety of the public or station personnel.

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

**LICENSEE EVENT REPORT (LER)  
CONTINUATION SHEET**

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NE0B-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an 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.

1. FACILITY NAME Comanche Peak Nuclear Power Plant Unit 1	2. DOCKET 05000 - 445	6. LER NUMBER			3. PAGE 2 OF 4
		YEAR	SEQUENTIAL NUMBER	REV NO.	
		2014	--002--	00	

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

**I. DESCRIPTION OF THE REPORTABLE EVENT**

**A. REPORTABLE EVENT CLASSIFICATION:**

During the past 3 years, a vacuum was drawn on the Unit 1 RCS during 1RF15 and 1RF16 using procedure SOP-101A, "Reactor Coolant System" and on the Unit 2 RCS during 2RF12 and 2RF13 using procedure SOP-101B, "Reactor Coolant System." LCO 3.4.3 requires the RCS pressure, temperature, and heatup and cooldown rates be maintained within the limits specified in the PTLR. The Applicability for LCO 3.4.3 is "At all times." The RCS heatup and cooldown limitations in the PTLR only specify a pressure to 0 psig.

Since the Applicability of TS 3.4.3 is "At all times," and the PTLR does not provide curves associated with a vacuum in the RCS, the plant was not operating in accordance with the TSs. Required Action C.1 requires initiating action to restore parameter(s) to within limits with a Completion Time of "Immediately." TS 1.3, "Completion Times," defines "Immediately" as "...pursued without delay and in a controlled manner." Action was not taken to restore parameter(s) immediately.

The events that occurred during 1RF15, 1RF16, 2RF12, and 2RF13 are therefore reportable as an operation or condition prohibited by Technical Specifications pursuant to 10CFR50.73(a)(2)(i)(B).

**B. PLANT CONDITION PRIOR TO EVENT:**

At the time of discovery, both units were in Mode 1 (Power Operation) at 100 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 structures, components or systems (SSC) that were inoperable at the start of the event and that contributed to the event.

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

On February 4, 2014, Luminant Power recognized Operating Experience at another station to be potentially applicable to Comanche Peak Nuclear Power Plant (CPNPP). An NRC inspection report described a failure to comply with reactor coolant system (RCS) Pressure/Temperature (P/T) Limits when RCS pressure decreases below 0 pounds per square inch gauge (PSIG). At the time of discovery, CPNPP's Pressure Temperature Limit Report (PTLR) only described pressures equal to or greater than 0 PSIG. However, since early 1996, CPNPP's analyses and procedures allowed drawing a vacuum during RCS refill following refuelings. Therefore, Luminant Power is conservatively reporting RCS pressure below 0 PSIG as a violation of Technical Specification 3.4.3 "RCS Pressure and Temperature (P/T) Limits."

The coordination of the change in RCS operating conditions was less than adequate, in that the associated affected documents were not revised as a result of failing to correctly identify the documents and/or involve all applicable parties, as well as the subtlety of the PTLR pressure value discrepancy. The apparent mental model by licensed operations personnel was not aligned with the literal applicability of the PTLR curves, in that the curves are applicable during RCS vacuum fill conditions, and not limited to only heat-up, cool-down, and inservice leak/hydrostatic testing conditions. Luminant Power interpreted the PTLR to only apply to RCS pressure conditions above atmospheric pressure, and therefore did not consider it in conflict with the adoption of the vacuum refill analysis and procedure. Corrective actions included revising the PTLR to specify negative 14.7 pounds per square inch gage (PSIG) as the lower limit. The explicit PTLR compliance error during vacuum refill did not adversely affect the health and safety of the public or station personnel.

**LICENSEE EVENT REPORT (LER)  
CONTINUATION SHEET**

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@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 an 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.

1. FACILITY NAME Comanche Peak Nuclear Power Plant Unit 1	2. DOCKET 05000 - 445	6. LER NUMBER			3. PAGE 3 OF 4
		YEAR	SEQUENTIAL NUMBER	REV NO.	
		2014	--002--	00	

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

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

In accordance with procedure STA-426, "Industry Operating Experience Program" Luminant Power personnel screen various industry operating experience (OE) sources. This event was identified as a result of an informal review of NRC inspection reports by the NSSS Systems Manager. The NSSS Systems Manager recognized the generic implications of a unique violation in NRC Inspection Report 05000440/2013007 dated January 3, 2014, and created Condition Report CR-2014-000960.

During the last three years, RCS pressure was reduced below 0 PSIG during the vacuum refill process in CPNPP Units 1 and 2. Specifically, RCS pressure was reduced below 0 PSIG during 2RF12, 1RF15, 2RF13, and 1RF16.

**II. COMPONENT OR SYSTEM FAILURES**

**A. CAUSE OF EACH COMPONENT OR SYSTEM FAILURE**

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

**B. FAILURE MODE, MECHANISM, AND EFFECTS OF EACH FAILED COMPONENT**

Not applicable - No component 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.

**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

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

The design change implementing vacuum refill evaluated the physical effects of the sub-atmospheric RCS pressure to not adversely impact the reactor vessel and Reactor Coolant Pressure Boundary (RCPB) structural integrity. Vacuum refill was implemented under 10 CFR 50.59, which relied upon Westinghouse WCAP-14040. The NRC Safety Evaluations are contained in Revision 2 and Revision 4 of the topical report approving them as acceptable P/T limits development methodologies.

**LICENSEE EVENT REPORT (LER)  
CONTINUATION SHEET**

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@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 an 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.

1. FACILITY NAME Comanche Peak Nuclear Power Plant Unit 1	2. DOCKET 05000 - 445	6. LER NUMBER			3. PAGE 4 OF 4
		YEAR	SEQUENTIAL NUMBER	REV NO.	
		2014	--002--	00	

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

CPNPP Operating Procedures SOP-101A, "Reactor Coolant System", for Unit 1, and SOP-101B, "Reactor Coolant System", for Unit 2, ensure sufficient RCS pressure to assure adequate net positive suction head (NPSH) for the RHR system, over an operating band of temperatures, pressures, and RHR flows.

Therefore, the explicit PTLR compliance error during vacuum refill did not adversely affect the health and safety of the public or station personnel.

**IV. CAUSE OF THE EVENT**

The coordination of change in RCS operating conditions was less than adequate, in that the associated affected documents were not revised as a result of failing to correctly identify the documents and/or involve all applicable parties, as well as the subtlety of the PTLR pressure value discrepancy. Luminant Power interpreted the PTLR to only apply to RCS pressure conditions above atmospheric pressure, and therefore did not consider it in conflict with the adoption of the vacuum refill analysis and procedure.

**V. CORRECTIVE ACTIONS**

On April 1, 2014, the Comanche Peak Nuclear Power Plant Pressure and Temperature Limits Report, Revision 3 became effective, which includes figures showing acceptable operation down to -14.7 PSIG.

**VI. PREVIOUS SIMILAR EVENTS**

There have been no previous similar reportable events at CPNPP in the last three years.