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GL-96-06

January 27, 1997

C. Lance Terry  
Group Vice President

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  
RESPONSE TO NRC GENERIC LETTER 96-06  
"ASSURANCE OF EQUIPMENT OPERABILITY AND  
CONTAINMENT INTEGRITY DURING DESIGN BASIS ACCIDENT"

REF: Letter logged TXX-96485, dated October 30, 1996,  
from C. L. Terry to the NRC

On October 1, 1996, the NRC issued Generic Letter 96-06, "Assurance of Equipment Operability and Containment Integrity during Design Basis Accident." TU Electric provided the initial response to the NRC request in the referenced letter. Following are the results of the completed review to address the subject Generic Letter and the actions taken.

TU Electric has determined that:

- (1) The containment air cooler cooling water system on each unit may be susceptible to water hammer; however, operability of post accident containment cooling and containment isolation would not be affected. The two phase flow condition issue is not applicable to CPSES.
- (2) Piping systems that penetrate the containment of each unit have been provided with overpressure protection for thermal expansion of trapped fluid between containment isolation valves and overpressurization of containment penetration piping should not occur. Further action is required in three cases. Operability of containment isolation has been evaluated in each of these cases as described below.

In the initial response, TU Electric identified that CPSES does not employ containment air coolers for post-accident containment heat removal. Instead, the containment spray system is sized to carry the full containment heat removal function for post-accident conditions. Therefore, the issue of two phase flow is not applicable to CPSES.

The containment air coolers are non-safety related and are cooled by a non-

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safety related cooling water system. Each unit's fan is de-energized and the common cooling water supply and return isolated by the Containment Isolation Phase A actuation signal during LOCA and MSLB accidents. However, the water hammer issue is applicable because CPSES emergency procedures allow restoration of cooling water flow to aid in containment heat removal. This is a desirable function even though not credited in safety analyses.

Because the containment air coolers are normally operating, fan coast down could add sufficient heat for steam formation in the cooling water coils of the containment air coolers. If the cooling system were put in service during recovery and a water hammer resulted, the layout of the system inside containment is such that the hydrodynamic loads would be expected to occur in the cooling coils and to be dissipated in the local piping and fittings such that the containment penetration operability would not be affected. Any resultant leakage would be into containment and would be detectable by a level alarm from the cooling water system's surge tank. The containment isolation valves are redundant MOVs which are environmentally qualified for the duration of the accident and would be capable of re-isolating containment as needed.

The applicable procedures have been reviewed for this potential condition. Shift operations have been cautioned that they should contact the emergency response organization TSC engineering team prior to restoring cooling water to the containment air coolers. Emergency procedures will be revised to require an evaluation by the TSC engineering team prior to reestablishing chilled water to containment. No additional action beyond that identified above is required.

TU Electric also identified, in the initial response, that CPSES has thermal relief valves between containment isolation valves in penetrations where the potential for over-pressurization of isolated piping during and after a LOCA was determined. A review of overpressure protection provisions was performed for both Unit 1 and Unit 2 to confirm each penetration has adequate relief. Three cases have been identified where further action is required. In each case, overpressure protection design features exist; however, there are circumstances under which the relief valves may be isolated from the containment penetrations during and after a design basis accident.

In the first thermal expansion case, either of two relief valves are normally available to protect the component cooling water loop to two heat exchangers in containment. Under unusual circumstances, one or both of these valves could be isolated by manual valves if the heat exchangers were taken out of service. Shift operations have been informed of this situation. A design change will be issued to lock open the isolation valves to ensure a relief path is available in Modes 1 through 4. Based on the direction provided to shift operations, no additional action beyond that identified above is required.

In the second thermal expansion case, any of four relief valves are available to protect the component cooling water return from the Reactor Coolant Pump Thermal Barriers. An automatic isolation valve is located between the penetration and each relief valve. Each valve receives a close signal on high temperature in the cooling water return lines from each pump. Because the lines are insulated and the containment temperature drops below the setpoint in less than 12 hours, it is not likely that the fluid temperature would exceed the setpoint. Although overpressure to the point of failure is unlikely based on conservatisms in the design, containment integrity would not be lost if it occurred. The thermal expansion/over-pressure scenario assumes the CCW piping to be intact and leak tight even though it is not required to be for containment isolation. A failure or increased leakage due to the pressure increase would not result in a containment breach. Design modification and analysis options are being considered. The CCW piping barrier is found to be operable, as discussed above, however, TU Electric is continuing to evaluate the design regarding this condition and anticipates design changes to address the effect of thermal expansion on the CCW piping. No additional action beyond that identified above is required.

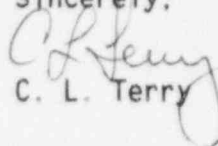
In the third thermal expansion case, the Unit 1 personnel airlock hydraulic system penetrates the containment boundary and has been classified as a closed system inside containment. The system is isolated by locked closed manual valves outside containment when the airlock is not in use. This isolates the relief valve and lines trapping the hydraulic fluid in the closed system. An analysis of thermal expansion overpressure is in progress and has not been completed. Operability has been evaluated. If the pressure increased significantly due to thermal expansion, the system contains mechanical seals which would begin to leak and relieve the pressure. A failure or increased leakage due to the pressure increase would not result in a containment breach. The isolation barrier is found to be operable, as discussed above, however, TU Electric is continuing to evaluate the design regarding this condition and anticipates design changes to address the effect of thermal expansion on the hydraulic system. No additional action beyond that identified above is required.

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If you have any questions regarding the above information, please contact Mr. J. D. Seawright at (817)897-0140.

Sincerely,

  
C. L. Terry

JDS/jds  
Attachment


c - Mr. L. J. Callan, Region IV  
Mr. T. J. Polich, NRR (3 copies)  
Mr. J. I. Tapia, Region IV  
Resident Inspector, CPSES

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	
Texas Utilities Electric Company	)	Docket Nos. 50-445
	)	50-446
(Comanche Peak Steam Electric	)	License Nos. NPF-87
Station, Units 1 & 2)	)	NPF-89

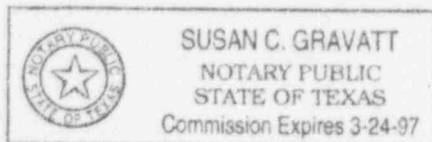
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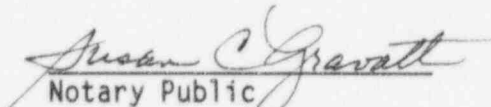
C. L. Terry being duly sworn, hereby deposes and says that he is Group Vice President, Nuclear Production of the Comanche Peak Steam Electric Station, that he is duly authorized to sign and file with the Nuclear Regulatory Commission this response to Generic Letter 96-06; that he is familiar with the content thereof; and that the matters set forth therein are true and correct to the best of his knowledge, information and belief.

  
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C. L. Terry  
Group Vice President,  
Nuclear Production

STATE OF TEXAS     )  
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COUNTY OF *Somervell* )

Subscribed and sworn to before me, a Notary Public, on this 27th day  
of January, 1997.



  
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Notary Public