TEXAS UTILITIES SERVICES INC.
2001 BRYAN TOWER - DALLAS, TEXAS 75201

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Mr. S. B. Burwell
Licensing Project Manager
Light Water Reactors Branch No. 2
Division of Project Management
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION
STARTUP TESTING OPEN ITEMS

Dear Mr. Burwell:

Attached are the responses to the startup testing questions transmitted to us on December 11, 1980. Amendment 14 to the FSAR contains the revised sections.

Sincerely,

B. S. Dacko

BSD:skf
Attachment
cc: J. T. Merritt
R. A. Jones
J. S. Marshall
Dick Camp

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COMANCHE PEAK OUTSTANDING ITEMS

TECHNICAL PROBLEM NO. 1
The response to item 423.27 is not acceptable.

Problem:

The applicant states that "the delay time of hardware between the measured variable and sensor input is insignificant with respect to overall system response". It is the Staff's position that this delay be accounted for either analytically or experimentally. Explain how you will verify that the overall response time is adequate.

Response:

The delay time of the reactor protection system hardware between the measured variable and the sensor input will be accounted for analytically. The overall response time is the sum of each individual component responses, including measured variable to sensor input delay. This overall response will be verified to be within the technical specification limit. See revised FSAR table 14.2-2, sheet 42.

TECHNICAL PROBLEM NO. 2

The response to item 423.28 is not acceptable.

Problem:

In the response to item 423.28, the applicant states that there is no intention on their part to perform capacity tests of the pressurizer power operated relief valves or steam generator power operated relief valves during the startup program.

Proposed Solution:

If factory testing or calculations to determine the capacities of power operated relief valves substitute for in-plant verification, then (1) the method of testing or calculation (2) the results of the testing or calculation and (3) how these results are extrapolated to actual plant conditions will be reviewed and retained. If there were no factory tests or calculations to determine capacity, then a test to determine capacity will be included in the startup program.

Response:

In response to TMI requirements, EPRI has been conducting performance testing of pressurizer power operated relief valves. The CPSES pressurizer power operated relief valve was tested at the Marshall test facility on September 11, 1980. To simulate the effect of downstream piping, the test was run at two back pressures. The results were:

		Low Back Pressure	High Back Pressure
Inlet Pressure (psig)	-	2130	2140
Outlet Pressure (psig)	-	190	620
Orifice Pressure (psig)	-	2335	2350
Flow Rate (lb/hr)	-	234,376	237,982

Since choked flow was achieved in both cases, there was very little variations in flow capacity. It can thus be reasonably assumed that the stated flow rate will be achieved in the CPSES installation. This flow rate is substantially less than the amount assumed for the FSAR Chapter 15 analysis of a stuck open safety valve.

The steam generator power operated relief valves were prototypically tested by the Fisher Valve Corporation, as referenced in Fisher Report No. 6 dated July 28, 1976, Problem 1495. Using standard industry practices, the valve was tested with air at 64.3 psia inlet pressure and 5 psia backpressure at which conditions it achieved choked flow. Calculations were performed, using choked flow relationships to extrapolate the test conditions to the CPSES conditions, i.e. saturated steam at 1107 psia and 560°F. The maximum steam flow extrapolated for CPSES conditioning was 712,900 lbm/hr. Although this flow is considerably above the FSAR design specification flow rate of 420,000 lbm/hr, it is well below the chapter 15 analysis for stuck open valve analysis which assumed 964,800 lbm/hr.

COMANCHE PEAK OUTSTANDING ITEMS

Technical Problem No. 3

The response to item 423.30 is not totally acceptable.

Problem:

In the response to item 423.30, the applicant states that an additional formalized inspection program will not be expanded to include snubbers in high energy systems that are not "safety related."

Proposed Solution:

Table 14.2-2 (sheet 57) will be expanded to include formal documentation and correction procedures for any discrepancies in the operation of installed snubbers noted in the general inspection of all piping systems during and following system transients during the initial test program.

RESPONSE:

The Operational Vibration Testing Test Summary (Table 14.2-2, sheet 57) has been revised to assure that any snubber in high energy "Non-Safety Related" systems which fail shall be properly documented and dispositioned. In addition, Figure 14.2-3 Preoperational Test schedule has been revised t reflect partial completion of the test prior to fuel loading and final completion upon completion of 100% power trips.

COMANCHE PEAK OUTSTANDING ITEMS

Technical Problem No. 4

The DC Power System Test Summary (Table 14.2-2, sheet 36) needs to be modified to assure that each battery charger is capable of floating the battery on the bus or recharging the completely discharged battery within 24 hours while supplying the lartest combined demands of the various steady-state loads under all plant operating conditions.

RESPONSE:

The DC Power System Test Summary (Table 14.2-2, sheet 36) has been modified to assure that each battery charger is capable of floating the battery on the bus or recharging the completely discharged battery within 24 hours while supplying the largest combined demands of the various steady-state loads under all plant operating conditions.

COMANCHE PEAK OUTSTANDING ITEMS

Technical Problem: No. 5

Section 14.2.3 needs to be modified to assure that all procedure modifications that alter the acceptance criteria or intent of the test will be appropriately reviewed.

RESPONSE:

Section 14.2.3 has been modified to assure that all procedure modifications that alter the acceptance criteria, test objectives or test method (procedure steps) will be appropriately reviewed.

COMANCHE PEAK OUTSTANDING ITEMS

Technical Problem No. 6

Several preoperational test abstracts need to be completed.

Sheet	Necessary Addition
9	Acceptance Criteria
30	Acceptance Criteria
42	Prerequisites

RESPONSE:

Sheet 9 - Spent Fuel Pool Cooling and Cleanup System Test Summary (Table 14.2-2 Sheets 9 of 60 and 9A of 60) has been revised to identify the Acceptance Criteria section of the summary. Note addition of test method 7 which was inadvertently omitted.

Sheet 30 - Acceptance Criteria for Containment Ventilation Test Summary (Table 14.2-2 sheet 30 of 60) is shown on continuation of test summary sheet 30A of 60.

Sheet 42 - Reactor Protection System Test Summary (Table 14.2-2 sheet 42 of 60) has been revised to properly identify Prerequisite section of test summary.

COMANCHE PEAK OUTSTANDING ITEMS

Technical Problem No. 7

How is reliability of the steam-driven auxiliary feedwater pumps demonstrated. Staff position is that five consecutive, cold, quick starts be demonstrated.

RESPONSE:

Auxiliary Feedwater System Test Summary (Table 14.2-2 sheet 51 of 60 and 51A of 60) has been revised to require the reliability of the steam-driven auxiliary feedwater pump to be demonstrated by successful completion of five consecutive quick starts from a cold condition.

COMANCHE PEAK OUTSTANDING ITEMS

Technical Problem No. 9

For test of the containment spray systems, verify that the flow paths for water flow tests and air flow test overlap. If these test flow paths do not overlap, describe how you will verify that the entire flow path from the pump to the spray headers is operable.

RESPONSE:

A free flow path will be demonstrated during the flush program by passing water through the piping between 1HV-4776 and manual isolation valve 1CT-141; and 1HV-4777 and manual isolation valve 1CT-146.

The air flow test will be performed by inducing air flow through the test connections provided downstream of 1HV-4776 and 1HV-4777 (with 1HV-4776 and 1HV-4777 in the closed position) and the manual isolation valves (1CT-141 and 1CT-146) into the ring headers.

The Containment Spray System Test Summary (Table 14.2-2 sheet 18 of 60) has been revised to require verification that the water flush path described above has been completed as a prerequisite to performance of the air flow test.

COMANCHE PEAK OUTSTANDING ITEMS

Technical Problem No. 10

Verify that ESF containment recirc fans will operate at conditions representative of post-accident conditions. If these conditions cannot be attained during the preoperational test program, explain how you extrapolate to post-accident conditions to show that fan motor currents do not exceed design limits.

RESPONSE:

The design bases for the Containment Air Recirculation Fans as specified in FSAR Section 9.4A.1.1 does not require operation following a DBA. Post-accident cooling is provided by the Containment Spray System. (See FSAR Section 6.2.2).

COMANCHE PEAK OUTSTANDING ITEMS

Technical Problem No. 11

Verify that tests of the sampling system are adequate to verify correct flow paths and sampling procedures and to determine sample line holdup times.

RESPONSE:

Process Sampling System Test Summary (Table 14.2-2 sheets 6 of 60 and 6A of 60) has been revised to require demonstration of correct flow paths, adequate sampling procedures and determine sample line holdup times are acceptable.

COMANCHE PEAK OUTSTANDING ITEMS

Technical Problem No. 12

Verify that any penetration cooling systems for the containment or primary shield maintain concrete within design temperature limits.

RESPONSE:

Containment Ventilation System Test Summary (Table 14.2-2 sheet 30A of 60) has been revised to require verification that the reactor coolant pipe penetration cooling system maintains the pipe tunnel concrete temperature within design temperature limits.

Typographical Errors:

Section	Page		
14.2.9	14.2-23	practical	
14.2.10	14.2-30	various	
14.2.11	14.2-32.33	practical, particular	
Table	**Sheet**		
14.2-2	2	Protection	(Index sheet 42)
	6A	pressure	(Accept Criteria)
	8A	...System interlocks, controls, annunciators,...	(Accept Criteria)
	10	isolated	(Test Method - 4)
	15A	miniflow	(Test Method - IM3)
		obstruction	(Test Method - RM1)
	16	...a simulated...	(Accept Criteria)
	17	Sentence requires rewriting to make understandable.	(Test Method - 3)
	18A	unobstructed	(Accept Criteria)
	19	offsite	(Objective)
	25A	Alarm	(Accept Criteria)
	28A	requirements	(Accept Criteria)
	33	system	(Objective)
	35	indication	(Test Method - 3)
	56	pressurizer	(Test Method - 4)
Table	**Sheet**		
14.2-3	1	Area Radiation Monitoring and Radiation Surveys	(sheet 10)
		Process and Effluent Radiation Monitoring Test	(sheet 11)
		Turbine Trip/Generator Load Rejection	(sheet 23)
	18A	asymetry	(Test Method - 3)
Figure 14.2-3		Electrical Area and Battery Room Ventilation (in place of Battery Room Ventilation)	
		Vents and Drains (in place of Equipment and Floor Drains)	

RESPONSE:

The typographical errors identified have been corrected.