TEXAS UTILITIES GENERATING COMPANY
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R. J. GARY
EXECUTIVE VICE PRESIDENT
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August 16, 1982

Mr. Harold R. Denton
Director of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation
Washington, D.C. 20555

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION
DESIGN CERTIFICATION
DOCKET NOS. 50-445 AND 50-446

Dear Mr. Denton:

CPSES management has become aware of recent NRC staff concerns associated with the certification of the adequacy of nuclear plant design and construction.

As you know it was precisely for this same concern that Appendix "B" to 10CFR50 was promulgated. CPSES has always been strongly committed to the concept of quality assurance and has implemented an extensive program covering all aspects of the design and construction of safety related components.

Since a detailed description of our Appendix "B" Quality Assurance program is contained in Chapter 17 of the FSAR, a repetition of the description will not be provided in this letter. Rather, I would call to your attention the following examples of additional programs implemented at CPSES which complement the quality assurance program in the verification of design, construction, and operation of CPSES. Detailed design review of specific systems, including extensive field inspection, is an integral part of each of these programs.

1. FSAR Commitment Verification Program

B001

To ensure that no commitments addressed in the FSAR were overlooked, CPSES contracted with a consultant to produce a document containing FSAR commitments. This document is updated regularly to include FSAR amendments. In order to better utilize this document, a CPSES engineering group was established to verify that FSAR commitments were or are being met. This group is staffed by experienced engineers not previously associated with Comanche Peak. Although the group is located at the construction site (which is also the primary location of CPSES engineer staff and the CPSES senior management) it maintains its independence from the construction groups via a separate reporting chain to the vice president in charge of nuclear construction. Using the consultant generated commitment document, the FSAR, the SER, FES, and NRC regulatory guides, commitments are systematically identified. The types of commitments identified are: 1) Functional - commitments which specify performance characteristics or objectives of systems or equipment; 2) Hardware - commitments which relate to the provision of equipment or components; 3) Materials - commitments which specify the material composition of equipment and component; 4) Installation - commitments relating to the mounting, support, separation and physical protection of equipment; and 5) Administrative - commitments relating to plant administration and operating procedures. Verification of commitments is determined by physical inspection of installation and/or establishing that commitments are included in project specifications, drawings, and procedures.

Any deviations from the commitments are reviewed, documented and appropriately corrected. It is significant to note that although several thousand commitments have been reviewed to date only a small fraction have contained discrepancies - none of which were of safety significance.

2. Piping system and supports as-built verification

In order to satisfy the requirements of IE Bulletin 79-14 and the requirements of the ASME Code, CPSES initiated the piping system and supports as-built verification program. The verification program is being conducted under the direct supervision of Texas Utilities staff engineers. In this program all safety related piping and supports are being as-built verified for correct installation and reconciliation of stress analysis. This verification assures that the completed piping system is adequate and consistant with the specified design criteria. The verification process consists of three phases:

Phase 1 consists of a drawing review of all systems that were previously identified as containing safety related piping to ensure all design changes have been included.

Phase 2 is a hands on, field verification that ensures that all safety piping systems have been installed in accordance with the Phase 1 reviewed drawings. Any discrepancies are reviewed, documented and appropriate corrective action taken. The end product of this phase is a complete set of safety related piping drawings which accurately reflect as-built conditions.

Phase 3 utilizes the verified drawings, and where changes have been found, the Code stress analysis and support designs are reconciled. Any discrepancies are reviewed, documented and appropriately corrected.

The result of this as-built verification process ensures, with a high degree of confidence, the adequacy of the design and construction of all safety related piping systems at CPSES under design basis conditions.

3. Damage Study Design Review

CPSES has organized an onsite Damage Study Group to verify the adequacy of safe shutdown systems when the plant is subjected to specific damage conditions. The specific damage conditions analyzed are: fire hazards and pipe breaks (high and moderate energy).

The basic design criterion used in the fire hazards analysis is that no single fire shall prevent safe shutdown. The analysis first identifies all systems required for safe shutdown. Using design drawings all cabling, equipment and components required for those systems to perform their function are identified and located. Further all circuits associated with safe shutdown systems are included in the analysis. All fire areas are then field inspected by fire protection personnel to verify that the applicable safety system fire protection criteria are met. Any discrepancies are reviewed and appropriately corrected. In those areas where it is found that both redundant trains of safe shutdown system are located in the same fire area and do not meet the separation criteria, additional fire barriers and/or suppression systems are installed to protect one train. In areas where adequate protection is provided for the required safe shutdown system (i.e., cable spreading room and control room) an alternate shutdown system is provided whose systems are independent of the affected areas.

Some of the effects considered in the high energy pipe break analysis are: pipe whip, jet impingement, and environmental effects of steam and water such as adverse temperatures, pressures, humidity and flooding.

The high energy pipe break analysis is conducted in three phases:

Phase 1 identifies all break points in all high energy lines that could possibly affect safe shutdown systems by pipe whip, jet impingement or adverse environmental effects.

Phase 2 defines all potential targets for all identified breaks. A field inspection is conducted to verify all interactions. The interactions are analyzed to determine acceptability.

Phase 3 analyzes all unacceptable interactions and provides appropriate resolutions. Resolutions consist of: installation of additional pipe whip restraints, relocating initiating piping or targets, installation of jet impingement shields, and upgrading environmental qualification.

The end result of the damage study review is to ensure, with a high degree of confidence, the adequacy of the design and construction of the safe shutdown systems under the postulated damage conditions.

4. Completions Walk-down

Organizationally, design and construction personnel are separate from operations personnel. When systems are completed to the satisfaction of construction, the system turnover procedure is implemented. As part of the turnover, a field inspection of the system is performed. Since the turnover involves the complete transfer of responsibility, it is incumbent on the accepting organization to verify the acceptability of the design and construction in minute detail. Both organizations are involved in this inspection and include quality assurance personnel, construction personnel, startup personnel, and personnel cognizant of the design and operational requirements of the system. Any deviation from any applicable requirement becomes a part of the Master System Punchlist. All punchlist items then are appropriately resolved.

5. Pre-operational Startup

To verify the satisfactory operation of all safety related systems, startup personnel conduct numerous approved performance tests. The testing is designed to demonstrate that the system performance complies with all applicable requirements. Should systems fail to perform as required, appropriate corrective actions are taken.

6. Independent Quality Assurance Evaluation

The Quality Assurance organization provides surveillance and audits in all the above areas, and in addition, engineering personnel (with no surveillance or audit responsibility) from the QA Division at the corporate office, have been assigned full time responsibility for extracting FSAR technical requirements, design features and commitments on selected systems. The resulting detailed checklists are used by these personnel to conduct compliance evaluations on these systems. Discrepancies noted are identified for corrective action as appropriate.

In summary, we are confident of the adequacy of the design, construction and operation programs at CPSES. Our confidence is based on: 1) our strong quality assurance program, and 2) complementary verification programs (such as noted above) initiated in specific areas. We believe the verification programs which we have established, including programs above regulatory requirements, provide a high confidence level which precludes the need for additional verification programs at this time. Should you have any questions concerning this matter, please do not hesitate to contact me.

Sincerely,

R. J. Gary

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RJG:grr