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William G. Council  
Executive Vice President

January 29, 1988

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

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION (CPSES)  
DOCKET NOS. 50-445 AND 50-446  
RESPONSE TO NRC INSPECTION REPORT NOS.  
50-445/87-04 AND 50-446/87-04

REFERENCE: TU Electric Letter TXX-6767 from W. G. Council  
to NRC dated December 18, 1987

Gentlemen:

The referenced letter stated that response to Open Items 445/8704-0-12 and 445/8704-0-25 would be provided by January 29, 1988. Accordingly, Attachment 1 to this letter contains these responses.

Additionally, the NRC and TU Electric met January 20, 1988, to discuss several of the responses included in the referenced letter. The meeting concluded with an NRC request for supplemental information on Open Items 445/8704-0-05, 445/8704-0-07, 445/8704-0-16, and 445/8704-0-19. Attachment 2 to this letter supplies that supplemental information.

Our response to Open Item 445/8704-0-24(c) stated that the Design Validation Program is performing a 100% review of safety-related design documents. This statement should read: "The Design Validation Program is validating 100% of the safety-related portions of the CPSES design, with the exception of NSSS hardware (NSSS interface is reviewed) and equipment supplier design (design interface is reviewed)."

The referenced letter also addressed two safety-significant evaluation (SSE) review programs performed in 1987. After reviewing the information supplied with this letter, we would like to offer additional clarification concerning these programs:

The first program, "SSE Continuing Review Program," was performed to (1) provide assurance that the SSEs accurately analyzed the deviating plant conditions and identified construction deficiencies or input to results reports for trend analysis and (2) ensure that the SSEs conformed to the Safety Significance Evaluation Group procedural requirements, such as problem description, completeness, and justification of conclusions.

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PDR ADOCK 05000445  
Q PDR

400 North Olive Street - LB 81 - Dallas, Texas 75201

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This program developed a screening process to determine the SSEs subject to a detailed review. The objective of the screen was to focus the review on those SSEs that could have led to the failure to identify all construction deficiencies or adverse trends. The second program, "VII.c Technical Review," was conducted to ensure that the trend analysis process of the VII.c program, as implemented, did not fail to identify any adverse or unclassified trends. To accomplish this task, a technical review of the SSEs, as well as the trend analysis of VII.c, was performed. The Technical Review Program included all SSEs and associated calculations, with the exception of (1) SSEs for deviations that are already covered under CPRT recommendations for corrective action (2) deviations that by their nature cannot be safety-significant, and (3) documentation review deviations.

These two review programs resulted in a recommendation that a number of SSEs be revised, primarily for clarification or completeness. These revisions were completed by December 17, 1987.

Very truly yours,

*W. G. Council*

W. G. Council

By: *D. R. Woodlan*

D. R. Woodlan  
Supervisor,  
Docket Licensing

RDD/mlh  
Attachment

c - Mr. R. D. Martin, Region IV  
Resident Inspectors, CPSES (3)

OPEN ITEM  
(445/8704-0-12)

I-M-HVIN-160-DR01

A DR was written on gravity damper CP1-VADPGC-19 because the counterweight was not installed and the counterweight arm had been secured in the open position with duct tape to an adjacent unistrut. The assessment of the SSE was that the intended function of the damper to provide a positive means of stopping backflow was redundant because the hydraulic parameters of the system always provide for forward flow through the damper. Consequently, the SSE concluded that this damper did not perform a safety-related function. However, the CPRT procedure for safety significance evaluations of DRs, Procedure CPP-016, specifies that, in assessing safety significance, no credit can be allowed for redundancy. Secondly, the damper provided the sole positive means to prevent backflow. The backflow in the case of this damper could involve contaminated air from the post accident sampling modules and possible exposure to personnel in the area who would be conducting the air sample testing.

Therefore, the NRC inspector disagreed with this SSE; this is an open item (445/8704-0-12).

RESPONSE TO  
(445/8704-0-12)

This gravity damper is located in a system that is safety-related because it handles potentially contaminated effluent from the sample area. To this extent, the damper is also safety-related in that the damper forms a system boundary.

The gravity damper was installed as a positive means of preventing backflow instead of performing the extensive calculations necessary to determine the flow characteristics of the duct system. The function of the gravity damper (i.e., to prevent backflow into the sample room) is not safety-significant as defined by the CPRT Program Plan because a calculation in the SSE demonstrates that under no design operating conditions does backflow into the sample room occur.

For this reason, the SSEG determined that this DR is not safety significant.

Procedure CPP-016 does not allow credit in determination of safety significance "for redundancy at the component, system, train or structure level." This restriction is referring to redundancy of the inspected item, which in this case would be another gravity damper. The SSE does not take credit for another gravity damper; consequently, the SSE is in compliance with procedure.

The SSE takes credit for the "designed" operation of the PPVS by use of redundant components. This does not preclude the SSE from taking credit for operation of the PPVS; this is not the redundancy to which the CPP-016 definition of "safety-significant" refers.

RESPONSE TO  
(445/8704-0-12) (Cont'd)

Please note that, as stated in the response to 11, final air balancing and preoperational testing of this system had not been completed before the CPRT reinspection was conducted. Included in the air balancing procedure is a specific check for gravity damper adjustment that requires verification of proper damper operation. Although the damper is not required for proper operation of the system, its function would have been assured by final air balancing of the system.

The CPRT inspected all other gravity dampers that were QC-accepted; therefore, all deficiencies would have been found. Additionally, the CPRT made a recommendation for improvement (not mandatory) that the CPSES Project accepted, calling for reinspection of all gravity dampers. Thus, any other existing deficiencies will be located and corrected before the system is accepted.

OPEN ITEM  
(445/8704-0-25)

I-S-EQSP-045-DR04

The DR was written because the torque for the bolts that attach the equipment junction box, 1-LCS-5803, to the unistrut support structure was found to be 100 in-lbs instead of the 228 in-lbs required. The SSE indicated that the required torque was not achieved because the mounting lugs on the junction box began to bend at 100 in-lbs of torque. The evaluation went on to demonstrate that the existing torque was adequate to support the junction box and to note that a field inspection confirmed that, although the lugs were bent slightly, neither the lug welds nor junction box were damaged or cracked. The evaluation concluded the deviation was NSSD. Although the NRC inspector agreed with the SSEG assessment of this specific deviation, the evaluation does raise questions as to: (1) the possibility of damage to the lug welds and/or component in this and other similar equipment where the required installation torque of 228 in-lbs was applied, and (2) a need for washers on all slotted hole connections of this type to ensure the proper bearing surface between the bolt head and lug. The evaluation did discuss the latter issue but no definitive action was specified. This is an open item pending receipt of information which appropriately addresses these concerns (445/8704-0-25).

RESPONSE TO  
(445/8704-0-25)

1. Damage to the lug welds and/or components in this and other similar equipment would be minimized if shims were installed as required by the existing installation details. While the acceptability of bolted joints was being evaluated, a determination was made that gaps between the connecting plies and torquing required corrective action. This corrective action stemmed from similar findings in the structural steel and pipe whip restraint populations and was extended to equipment supports due to the similarity of the work processes involved in ensuring an acceptable installation. As this corrective action would cover all types of installations similar to the one in question, no further action is required to address this concern.
2. An analysis has been performed for worst-case loading of this type of equipment box to determine if the absence of flat washers on the slotted holes would adversely affect the seismic qualification. The calculation qualifies the same for use at CPSES.

OPEN ITEM  
(445/8704-0-05)

I-E-CABL-383-DP01

The minimum bend radius violation for a cable (EQ128190) installed between the Nuclear Instrumentation System cabinet and the Solid State Protective System cabinet was evaluated in the SSE. The evaluation concluded, based on the proper operation of the cable to date, and an onsite test, that the cable installation was not safety significant and would not result in the inability of the cable to perform its safety-related function. The NRC inspector noted, however, that a letter from the vendor, Westinghouse Electric Corporation, dated October 14, 1986, stated that approval of the installed bend radius could not be granted.

The NRC inspector discussed this SSE with ERC and CPRi personnel and was informed that additional information was being requested from the vendor; however, as of the end of this report period, additional information had not been provided. The NRC inspector could not agree with the NSSD determination on the basis of the available information. The NSSD determination for this condition is an open item (445/8704-0-05).

RESPONSE TO  
(445/8704-0-05)

The subject cable is a 16-twisted-pair (32-conductor) No. 18 AWG cable with an overall shield and jacket. The purpose of the outer Teflon jacket is additional mechanical protection for the insulated conductors. This cable is used inside cabinets located in the control room.

The cable vendor disapproved this installation and indicated that the Teflon jacket on the cable may be damaged by the small bend radius. Therefore, damage to the Teflon jacket may affect the qualification of the cable. However, the protective function of the Teflon jacket is not necessary in this application because the cable is located within an enclosed cabinet in the control room. The jacket is presently trimmed to a point approximately 18" from the bend in question to allow for termination of individual conductors, but the termination procedure allows for trimming the jacket all the way back to the cabinet entrance, if necessary. Therefore, complete removal of the jacket beyond the location of the bend is acceptable, and any damage to the jacket resulting from the smaller bend radius would also be acceptable and would not affect operation of the individual conductors. As the individual conductors are not adversely affected by a bend radius of 2-9/16 inches (the radius of the bend in question), the conclusion of "not safety-significant" is justified.

SUPPLEMENTAL RESPONSE TO  
(445/8704-0-05)

The trend analysis performed in the ISAP VII.c Results Report, Appendix 3 identified an unclassified trend concerning cable bend radius. The likelihood of a construction deficiency existing in the uninspected portion of the cable population due to similar deviations could not be determined because of the different cable types used in the plant and corresponding different bend radius requirements. Consequently, a CPRT recommendation for corrective action was made to the Project to reinspect installation of those types of cable that did not have bend radius requirements in the installation instructions, and replace cables that do not meet appropriate bend radius criteria.

The Project has committed in Corrective Action Request (CAR) 87-035 to replace the deviant cable reported in CPRT deviation report I-E-CABL-383-DR1, reinspect to appropriate bend radius criteria all cable types field installed without appropriate bend radius installation instructions, and correct as necessary. These actions will ensure that the cable is installed in accordance with technical requirements for bend radius.



OPEN ITEM  
(445/8704-0-07)

I-E-EEIN-097-DR08

In June 1986, an incorrect Westinghouse AC relay (Model AR 440 SR) was found installed in a panel where a DC relay (Model ARD 440 SR) was required. The SSE and its supporting data suggested that the correct relay type has been present in the panel prior to November 1984. ERC was unable to locate any maintenance or test records to support a relay substitution at the plant site. An extensive analysis was provided in the SSE to confirm that an AC relay would operate for a brief period of time in the DC circuit. The NRC inspector was advised that a 100 percent reinspection was recommended for all auxiliary relay panels provided by YEP Industries, Inc. This recommended action was based on the premise that an error had been made by the vendor prior to panel shipment in 1982 and had not been detected by QA/QC inspections, initial operation of the panel relays, or periodic surveillance tests. This is an open item pending receipt of justification for limiting this reinspection activity to the single vendor (445/8704-0-07).

RESPONSE TO  
(445/8704-0-07)

Recommendations for corrective action are not in the scope of the SSE; they are found in the ISAP VII.c Results Report. Details of the recommended corrective action are found in Appendix 6 of the report for this item. These recommendations, in summary form, consisted of reinspection for configuration and evaluating and revising (as necessary) the design control and configuration control programs. TU Electric has determined that the reinspection will be limited to this particular vendor, as justified in CAR 87-036. The CPRT has reviewed the CAR and agrees that this corrective action is appropriate.

SUPPLEMENTAL RESPONSE TO  
(445/8704-0-07)

The justification provided in Project Corrective Action Request (CAR) 87-036, to limit the corrective action to a single vendor, is based on an in depth review that determined the root cause to be a vendor related problem and therefore, related only to equipment furnished by this one vendor.

Implementation of ISAP VII.a.9, Adequacy of Purchased Safety-Related Material and Equipment, includes reinspection of electrical equipment supplied by several other vendors. These reinspections, which include verification of installation of proper devices, will provide data for additional vendors. Results of these reinspections, and additional recommendations, if necessary, will be included in the ISAP VII.a.9 Results Report. Results from ISAP VII.c concerning installation of proper devices will be evaluated in conjunction with the ISAP VII.a.9 results to determine if additional corrective action is required.



OPEN ITEM  
(445/8704-0-16)

Cement Grout (GRTC)

R-S-GRTC-GEN-DR01	R-S-GRTC-003-DR01
I-S-GRTC-010-C1	R-S-GRTC-010-DR01
R-S-GRTC-035-DR04	R-S-GRTC-039-DR01
R-S-GRTC-039-SR03	R-S-GRTC-039-DR05
R-S-GRTC-058-DR02	R-S-GRTC-059-DR02

DRs were written because some attributes on cement grout IRs were left blank; i.e., not checked "SAT" or "UNSAT". The QC inspectors had, however, signed and dated the IRs and had checked "Inspection completed, all applicable items satisfactory." The Safety Significance Evaluation Group (SSEG) concluded that the missing check marks were inadvertent oversights. Since the IRs were signed and the inspection procedure identified, the SSEG judged that the grouting work was performed in accordance with project requirements, and the missing check marks were not safety significant.

The NRC inspector discussed this situation with a past concrete grout QC inspector who stated that the signature present on the IRs described above does not override the need for each attribute to be checked. The NRC inspector concluded that the above condition is indeterminate as the original QC inspector may have failed to inspect for the attributes that were not checked.

The following DRs address attributes on the IRs that were left blank:

R-S-GRTC-035-DR04

All attributes regarding curing were left blank.

R-S-GRTC-039-DR01

The attribute verifying that the area to be grouted was vibration free was left blank.

R-S-GRTC-039-DR05

The attribute verifying that the grout was placed continuously and properly consolidated was left blank.

This subject is an open item pending NRC inspector review of additional information (445/8704-0-16).

RESPONSE TO  
(445/8704-0-16)

The SSE for R-S-GRTC-035-DR04 has been revised to base the evaluation on physical inspection of the grout placement. This inspection indicates that grout placement is satisfactory in that no characteristics that would result from improper curing were evident. Because grout placement is acceptable, the deviation is limited to improper documentation, which in and of itself cannot be safety-significant. Therefore, this deviation is not safety significant.

DRs R-S-GRTC-039-DR01 and R-S-GRTC-039-DR05 have been revised to an indeterminate conclusion in accordance with the procedure described in response to open item 445/8704-0-01.

SUPPLEMENTAL RESPONSE TO  
(445/8704-0-16)

Issue-specific Action Plan (ISAP) VII.c, construction work category Cement Grout was evaluated by review of grout placement inspection reports. When these contained incomplete or missing information, a Deviation Report (DR) was prepared. A Safety Significant Evaluation (SSE) of the DR was then performed, and as appropriate, grout characteristics that indicate proper execution of certain work activities were verified in the field. However, other construction work activities could not be verified by physical examination except at the time of the original inspection.

The SSE for R-S-GRTC-035-DR4 has been revised to base the evaluation on physical examination of the grout placement which indicates that grout placement is satisfactory in that no characteristics that would result from improper curing were evident. Because grout placement is acceptable, the deviation is limited to improper documentation, which in and of itself cannot be safety-significant. Therefore, this deviation is not safety-significant.

The SSEs for DRs R-S-GRTC-039-DR1 and R-S-GRTC-039-DR5 have been revised to an indeterminate conclusion in accordance with the procedure described in the response to open item 445/8704-0-01, because the original inspection report does not indicate that the inspection attributes "grout poured continuously and strapped and rodded for proper consolidation" and "vibration from nearby equipment avoided" were satisfactory. Furthermore, proper completion of these construction activities could not be verified by physical examination except at the time of the original inspection.

These two deviations were further evaluated in Appendix 21 of the ISAP VII.c Results Report.

In 120 grout placement inspection reports reviewed to verify that the inspector documented that the area was free of vibration before and during placement, one deviation was reported in which the attribute on the inspection report was not marked by the inspector. The attribute following this one on the inspection report (grout poured continuously and properly consolidated) was also not marked, but the remainder were. Review of other inspection reports completed by the same inspector revealed that they contained both attributes and that both were marked, indicating they had been inspected. A review of this inspector's certification records showed that he had a valid certification at the time of the inspection.

Third-party field verification determined that the item grouted was on top of the pedestal for a diesel generator and was unlikely to have been subjected to vibration at the time of placement. Therefore, the conclusion was reached that the grout placement was satisfactory, and the deviation on the vibration inspection attribute was determined to be insignificant.

SUPPLEMENTAL RESPONSE TO  
(445/8704-0-16) (Cont'd)

Based on third-party field verification of surface conditions for this placement, as well as the small size and easily accessible location of the plates being grouted, the deviation on the continuously poured and properly consolidated inspection attribute was also determined to be insignificant.

As noted in Section 2.3 of Appendix 21 of the ISAP VII.c Results Report, limited physical reinspection of specific characteristics of grout placement were conducted in two other construction work categories. In the category of Field Fabricated Tanks, no cement grout deviations were found during reinspection of exposed grout surfaces. In the Mechanical Equipment Installation category, eight deviations were identified during reinspection for missing or damaged grout. These were determined to be insignificant, and no adverse trend was identified. In addition, many grout placements were physically examined during evaluation of deviations in the Cement Grout construction work category, as noted above. All of these placements were found to be sound, with no indications of significant cracking, crumbling, or other signs of improper placement. These observations and inspections yield additional confirmation concerning proper completion of the work activities for grout placement, as documented on the original inspection report.

OPEN ITEM  
(445/8704-0-19)

I-S-INSP-062-DR02

The inability of the ERC inspector to verify that the anchor bolt nuts on a baseplate had not bottomed out was evaluated in the SSE. The evaluation attempted to show that, based upon the measured length of the thread projecting above the nut, the nut had not bottomed out. The worst condition inspected (1 3/16" of projected thread) indicated that the nut was located at the last thread of the bolt; therefore, the SSE concluded that the nut had not bottomed out. Based on this information the NRC inspector concluded that the evaluation demonstrated that one nut had possibly bottomed out. The NRC inspector also concluded that the SSE had not established a verifiable basis to conclude that the deviation was not an SSD as required by paragraph 5.5.2(e) of ERC Procedure CPP-016. Additional information is required to prove more conclusively that the nut had not bottomed out and that the Hilti had, therefore, been properly set. This is an open item (445/8704-0-19).

RESPONSE TO  
(445/8704-0-19)

The record of torque verification test performed during CPRT inspection of the support offers additional evidence that the nut had not bottomed out. Test results indicate that the bolt and nut in question passed the torque test acceptance criteria, indicating that sufficient pre-tension is present in the Hilti bolt to ensure that it is properly set.

SUPPLEMENTAL RESPONSE TO  
(445/8704-0-19)

Additional deviations of Hilti anchor bolt nuts bottoming out on the bolt threads are discussed in the Results Report for ISAP VII.b.4, Hilti Anchor Bolt Installation. This deviation type was determined to be an unclassified trend, since there is insufficient information to determine if a construction deficiency is likely to exist in the uninspected portion of the population. Consequently, a CPRT recommendation for corrective action was made to the Project to reinspect all safety related Hilti anchor bolts for bottomed out nuts, and rework as required.

The Project has committed in Corrective Action Request (CAR) 87-052 to field verify proper installation of all safety related Hilti anchor bolts to confirm each nut is not bottomed out on the bolt threads, and to rework as required. These actions will ultimately ensure proper installation of Hilti anchor bolt nuts.