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Ref. # 10CFR2.201

William J. Cahill, Jr.
Executive Vice President

March 19, 1990

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
NRC INSPECTION REPORT NOS. 50-445/90-03; 50-446/90-03
RESPONSE TO NOTICE OF VIOLATION

REF: TU Electric letter TXX-90095 from William J. Cahill, Jr. to
the NRC dated March 9, 1990

Gentlemen:

TU Electric has reviewed the NRC's letter dated February 16, 1990, concerning the inspection conducted by the NRC staff during the period January 3 through February 6, 1990. This inspection covered activities authorized by NRC Construction Permits CPPR-126 and CPPR-127 for CPSES Units 1 and 2. Attached to the February 16, 1990, letter was a Notice of Violation.

TU Electric hereby responds to the Notice of Violation Item A (445/9003-V-01; 446/9003-V-01) in the attachment to this letter. TU Electric's response to Notice of Violation Item B (445/9003-V-03) was submitted in the referenced letter.

Sincerely,

A handwritten signature of William J. Cahill, Jr. in cursive script.

William J. Cahill, Jr.

RSB/vld
Attachment

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

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Notice of Violation, Item A
(445/9003-V-01; 446/9003-V-01)

Criterion XVI of Appendix B to 10 CFR Part 50 as implemented by Section 16.0, Revision 0, of the TU Electric Quality Assurance Manual requires that "Measures shall be established to assure that conditions adverse to quality, .. are promptly identified and corrected."

Contrary to the above, an error in Calculation 16345/6-CS(B)-58, "Service Water Intake Structure-Exterior Wall Design," Revision 1, which was identified by the NRC was not adequately corrected. The NRC issued Open Item 445/8948-0-01; 446/8948-0-01 identifying that the groundwater level assumption of 780 feet in the above calculation was in conflict with groundwater readings of approximately 783 feet at two piezometers located next to the service water intake structure. The applicant issued Change Notice 2 to the base calculation which revised the assumed groundwater level to 783 feet. However, the revised groundwater level at 783 feet was still inadequate in light of the facts that (1) both of the local piezometers read greater than 783 feet at some time during the 1988 monitoring program, (2) no margin was added for instrument error, and (3) no consideration was made for the possible changes in groundwater level over the 40-year service life of the intake structure.

Response to Notice of Violation, Item A
(445/9003-V-01; 446/9003-V-01)

TU Electric accepts the violation and the requested information follows.

1. Reason for Violation

The elevation of the groundwater (783') used in calculation 16345-CS(B)-058, Revision 0, CCN 002, was considered to be acceptable for evaluating the structural adequacy of the Service Water Intake Structure (SWIS). This determination was based on historical groundwater data, the design of the backfill around the structure and the amount of margin in the design of the structure. The presence of groundwater at CPSES has been evaluated since the initial stages of design/construction. No groundwater was encountered during excavation for the plant and the design basis groundwater table was originally established as elevation 775 which was to be the normal level of the Squaw Creek Reservoir (SCR) and the Safe Shutdown Impoundment (SSI). This elevation was revised upward to 780' during the Corrective Action Program (CAP) based on a review of historical information associated with seepage into Category I structures and groundwater elevations observed in the borings drilled for the geological studies. However, these borings may have been influenced by perched water which is primarily the result of surface runoff and does not represent an actual measure of groundwater. Therefore, piezometers were installed and a groundwater monitoring program was initiated in 1988 to obtain actual groundwater measurements.

The groundwater levels in the piezometers adjacent to the SWIS varied by less than 1 foot during 1988, while piezometers near other structures showed greater fluctuations. Substantial increases are not expected at the SWIS since there is approximately 30 feet of backfill along the north wall of the SWIS which slopes down an embankment toward the Safe Shutdown Impoundment (SSI) to approximately 6 feet of backfill at the south wall. The presence of this backfill and the slope towards the SSI allows the water to drain since the backfill has a relatively high permeability as compared to the surrounding native material.

The maximum observed groundwater level of 783.2' at the SWIS in 1988 was rounded off to 783' for the design basis elevation. The additional 0.2' and any instrument/measurement error (estimated to be less than 0.1') were deemed to be insignificant since they would have minimal impact on the magnitude and location of the resultant forces. Change Notice 2 to calculation 16345-CS(S)-058, Revision 0, evaluated the effect of increasing the design basis groundwater elevation to 783'. This analysis demonstrated that the 3 foot change in water level from the previous value of 780' did not significantly reduce the margins available in the design. Based on these results, the design margin remaining and the configuration of the backfill, it was concluded that the structure was adequate. However, the conclusion that additional margin exists for fluctuations in groundwater elevation greater than 783' was not explicitly documented.

2. Corrective Action Taken and Results Achieved

As discussed previously, the backfill and the slope of the embankment toward the SSI will not permit the buildup of excessive groundwater levels at the SWIS. However, to accommodate any further fluctuations in the groundwater level, the design basis groundwater elevation for the SWIS has been revised to elevation 793'. This represents the probable maximum flood (PMF) level of the SSI including wave run-up at the SWIS. This level is 10' higher than the previous elevation and it is not expected to be exceeded since it is the maximum level which could be attained for groundwater whose source is seepage from the SSI. High groundwater levels which occur from other sources would not occur simultaneously with the PMF due to the relatively slow build-up of groundwater as compared to surface water. Hence high groundwater from these sources would drain naturally through the permeable backfill down to the SSI.

Calculation CS-CA-0000-2183, Revision 0, was prepared to assess the impact of the groundwater at elevation 793'. This calculation demonstrates that the SWIS meets the specified design criteria for this condition and confirms the conclusions drawn from previous calculations. The extent of this condition is limited to the SWIS since the design basis for other Category I structures conservatively assumes the groundwater to be at plant grade, i.e., elevation 810'.

3. Corrective Steps Taken to Avoid Further Violations

All groundwater calculations have been completed using the conservative assumptions for groundwater elevation as discussed above. Future calculations of this type are not expected; however, Design Basis Documents DBD-CS-084, "Other Category I Concrete Structures," and DBD-CS-91, "Foundation Material Properties," have been revised to indicate a design basis groundwater level of 793' for the SWIS. The criteria for other Category I Structures remains at plant grade, elevation 810'. These changes to the DBDs provide assurance that future groundwater calculations will be based on clearly conservative values for groundwater.

Civil Engineering personnel responsible for evaluating changes in the design criteria have been reminded of the procedural requirements to clearly state why the changes are technically acceptable including explanations of the underlying assumptions and variables considered.

4. Date of Full Compliance

Full compliance has been achieved.