



Log # TXX-95241
File # 10130
IR 95-08
Reg. # 10CFR2.201

C. Lance Terry
Group Vice President

September 11, 1995

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. 50-445/95-08; 50-446/95-08
RESPONSE TO NOTICE OF VIOLATION

RE: (1) TU ELECTRIC LETTER TXX-95151, "Response to Notice of
Violation 50-445/95-08; 50-446/95-08, and

(2) NRC LETTER (Log No. RIV-959), "Reply to NRC Inspection
Report 50-445/95-08; 50-446/95-08 and Notice of Violation",
dated August 10, 1995

Gentlemen:

TU Electric has reviewed the above NRC letter dated August 10, 1995, concerning the inspection conducted by Mr. Lonny Eckert of the NRC Region 1 office, during the period of April 10 through April 13, 1995. The original Inspection Report and attached Notice of Violation was dated May 10, 1995. TU Electric transmitted our response to the NRC via TXX-95151 as referenced above.

TU Electric's review of the NRC's response in Reference 2, observed that the NRC perceived that TU Electric performed a less-than-adequate evaluation of the use of badging for radiological measurements. TU Electric accepts the violation and a detailed reply is provided in Attachment 1.

TU Electric wants to assure the NRC that our primary concern is to ensure the radiological safety of the individual consistent with ALARA practices. Any changes in our badging practices were made only after a thorough and in-depth evaluation of the industry approved practices.

TU Electric has subsequently reviewed radiation surveys and Thermoluminescent Dosimeter (TLD) data and concluded that no exposures were received in excess of administrative limits for the subject event. The evaluation as stated in Reference 1, concluded that the individuals were adequately monitored and exposures were in compliance with 10CFR20 requirements.

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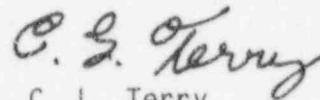
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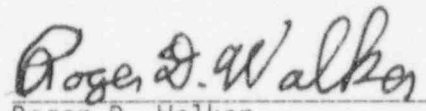
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TU Electric will enhance CPSES radiation protection instructions to include clarification of relocation criteria for the whole body dosimeter and enhance the assessment and associated documentation of radiological conditions used to determine whether issuance of multiple dosimeters or relocation of the whole body dosimeter is warranted.

Please do not hesitate to contact me, or contact Roger Walker at (817) 897-8233 to coordinate any additional information you may need to facilitate closure of this issue.

Sincerely,


C. L. Terry

By: 
Roger D. Walker
Regulatory Affairs Manager

NSH:nsh
Attachment

cc: Mr. L. J. Callan, Region IV
Mr. D. F. Kirsch, Region IV
Resident Inspectors

2. Corrective Steps Taken and Results Achieved

Survey data was analyzed and compared to the affected individual's electronic dosimeter readings and final TLD results. TU Electric has assigned calculated dose to the individuals' NRC Form 5.

3. Corrective Steps Taken to Avoid Further Violation

- A. In addition to the procedural changes noted in Reference 1, Radiation Protection Instruction RPI-528 will be revised, to include the following enhancement for relocating the normal whole body TLD when multi-badging is not otherwise required for any specific job.
- If the dose to another part of the whole body is expected to be significantly higher than the front torso, then the individuals dosimetry should be moved to the area of highest dose based on assessment of radiological conditions, job duration and other factors.
- B. Radiation Protection Supervision will review steam generator channel head, manway and platform surveys to determine if whole body TLD relocation or multi-badging is required.
- C. Radiation Protection technicians will receive additional training pertaining to this notice of violation and the importance of properly assessing whole body exposure through the use of multi-badging and relocating whole body dosimetry.
- D. TU recognizes the fact that dose rates will change each outage. The historical information gathered was used to determine the way the work was performed, the orientation of the workers body, actual dose rates and relative dose gradients. This information was vital in evaluating the significance of multi-badging and dosimeter relocation. It is the relative dose gradient that is most significant in determining the need for multi-badging and/or dosimeter relocation. During 1RF04, a thorough assessment of the potential hazard was achieved by the use of survey instrumentation to perform a multiple point steam generator channel head and manway survey. However, the assessment was not formally documented. In order to programmatically enhance the exposure assessment prior to and during steam generator work, Radiation Protection will perform the following:
- An additional survey point will be added to the steam generator channel head and manway survey to include the inner planar boundary of the manway.
 - The number, type (full or partial), and duration of entries will be recorded. Due to the fact that many partial entries are on the order of a few seconds, partial entries of this type will be recorded on a cumulative basis for each specific evolution (e.g. eddy current probe change).

REPLY TO NOTICE OF VIOLATION

TU Electric accepts the violation. The violation correctly states that a portion of the whole body (upper arm) was exposed to a higher radiation field than the chest (location of the TLD). This exposure occurred for very brief periods during probe changes performed by Steam Generator Eddy Current workers. Radiation survey and Thermoluminescent Dosimeter (TLD) data demonstrates that no exposure received was in excess of administrative limits. Adequate and thorough assessment of the potential radiological hazard(s) was achieved by using calibrated survey instrumentation to perform an eight point survey within the Steam Generator bowl area. The requested information concerning the violation is provided as follows:

1. Reason for the Violation

Prior to the CPSES Unit 1 fourth refueling outage (1RF04), multi-badging was required for steam generator eddy current workers in accordance with Radiation Protection Instruction (RPI)-612, "Steam Generator Work Control". Evaluation of steam generator worker exposure data between 1992 and 1994 indicated to TU Electric that the majority of the whole body multi-badge packs and extremity badge usage were unnecessary per the criteria identified in RPI-528, "Multiple Dosimetry Badging".

Radiation Protection Instruction RPI-528 contained specific criteria for when to use multi-badge and/or extremity TLDs:

Whole Body Multi-badge Issuance Criteria:

- Dose gradient is greater than or equal to 1.5R and
- Whole Body Dose Rate is greater than or equal to 100 mR/hr and
- Expected Whole Body Dose is greater than or equal to 300 mR.

Extremity Badge Issuance Criteria:

- Dose gradient is greater than or equal to 4.0R and
- Expected extremity dose is greater than or equal to 500 mR.

Based on the evaluation of historical multi-badge data, RPI-612 was revised to remove the requirement for multi-badging for steam generator workers and to state that multi-badges should be issued based upon survey results and the issuance criteria provided in RPI-528. The decision to relocate badges was left to the Radiation Protection Technicians who were monitoring steam generator activities, based on their review of the multiple point steam generator surveys. Even though criteria for when to use multi-badging and extremity badging were identified (RPI-528), the revision of RPI-612 did not give procedural guidance to establish relocation of the whole body dosimeter. As a result, a formal assessment of the survey data to determine whether the chest dosimeters should have been relocated to the highest receptor (upper arm) was not documented. TU Electric believes that the failure to document a formal assessment of radiation surveys to determine the receptor location of maximum exposure was the cause of the violation.

4. Other Information

Page 4 of NRC letter dated August 10, 1995 states:

"No detailed point-to-point ("tree) type survey(s) of dose rates within the steam generators was conducted during the 1RF04 refueling outage. As a result, no detailed point to point comparisons (outage to outage) of dose rates within the steam generator was conducted to support the licensee's contention that dosimetry provision/use was in accordance with 10 CFR20.1201(c)."

TU Electric has documented multiple point steam generator channel head surveys from all outages (including 1RF04) that included primary side steam generator work activities.

Page 4 of NRC letter dated August 10, 1995 states :

"This point is particularly distressing in light of the fact that dose rates were considerably different as compared to previous outages. In previous outages, most work activities in the loop areas had been conducted while the steam generator tube bundles were shielded by water. In 1RF04, steam generators were drained below the tube bundles."

Comparison of the multiple point steam generator channel head surveys performed during the previous two Unit 1 outages (1RF03 and 1RF04) indicates that channel head dose rates were not considerably different. Draining the secondary side of the steam generator has a very minimal effect on the dose rates in the primary side channel head at Comanche Peak. However, the condition of the secondary side of the steam generator will be considered when assessing the radiological hazard associated with steam generator activities and other work in the vicinity of the steam generators.

5. Date of Full Compliance

TU Electric is in full compliance with 10CFR Part 20 requirements at this time. All program enhancements noted in this letter will be completed by October 31, 1995