TU ELECTRIC

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December 15, 1989

William J. Cahill, Jr.
Executive Vice President

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. 50-445/89-73; 50-446/89-73
RESPONSE TO NOTICE OF VIOLATION

Gentlemen:

TU Electric has reviewed the NRC's letter dated October 30, 1989, concerning the inspection conducted by Mr. R. Latta and other NRC consultants during the period September 6 through October 3, 1989. This inspection covered activities authorized by NRC Construction Permits CPPR-126 and CPPR-127 for CPSES Units 1 and 2. Attached to the NRC's letter was a Notice of Violation.

In a discussion with Mr. R. F. Warnick of the NRC on November 27, 1989, and subsequently with Mr. W. D. Johnson on December 7, 1989, TU Electric requested and was granted an extension, until December 15, 1989, for the response to the Notice of Violation.

TU Electric hereby responds to the Notice of Violation in the attachment to this letter.

Sincerely,

William J. Cahill, Jr.

BSD/bsd
Attachment

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

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NOTICE OF VIOLATION
ITEM A (445/8973-V-01)

A. Criterion V of Appendix B to 10 CFR Part 50, as implemented by Section 5.0, Revision 1, of the TU Electric Quality Assurance Manual, requires that activities affecting quality shall be prescribed by and accomplished in accordance with documented instructions, procedures, or drawings.

Paragraph 15.1 of TU Electric Specification 2323-MS-85 states, in part, "Welding and brazing procedures, welders, and welding operations shall be qualified in accordance with AWS D.1.1, Structural Welding Code," which requires shielded metal arc welding processes for joints classified as "structural steel" square groove butt welds.

Contrary to the above:

The square groove butt welds on the companion angle flanges of the heating, ventilation, and air-conditioning (HVAC) system which were required to be welded using the shielded metal arc welding process were determined to have been welded using the gas metal arc welding process.

RESPONSE TO NOTICE OF VIOLATION
ITEM A (445/8973-V-01)

TU Electric accepts the violation and the requested information follows.

1. Reason for Violation

   Discussion

   On January 24, 1989, a Design Change Authorization (DCA) was issued to Specification 2323-MS-85, "HVAC Ducts, Louvers and Accessories", to clarify the applicability of AWS welding standards. The DCA resulted in certain groove welds becoming subject to the provisions of AWS D1.1 whereas they had previously been subject to the provisions of AWS D9.1. Specifically, groove welds on structural shapes to structural shapes for duct reinforcing became subject to AWS D1.1 after January 24, 1989, and were thereafter required to be either Shielded Metal Arc Welding (SMAW) welded or qualified for Gas Metal Arc Welding-Short Circuit Arc Transfer (GMAW-S). The DCA did not require backfit of existing welds. Since the HVAC Contractor was unable to qualify the groove welds using the GMAW-S process, they were required to be welded using the AWS D.1.1 prequalified SMAW process.

   CPSES received concerns in June 1989 stating that HVAC Contractor welders were using the GMAW-S process in lieu of the required SMAW process when performing square groove butt welds on HVAC duct reinforcing. SAFETEAM requested Corporate Security to investigate this matter. Corporate Security obtained information during its investigation which suggested

that procedural violations occurred after January 24, 1989. Specifically, interviews of HVAC welders by Corporate Security indicated that HVAC Contractor employees on numerous occasions used the GMAW-S welding process in lieu of the required SMAW welding process for HVAC square groove butt welds on structural shapes to structural shapes after the January 24, 1989, specification change. The welders interviewed stated that they had not used improper welding processes but other welders had. The welders interviewed would not or could not identify specific welders or instances.

Efforts were undertaken to determine the extent of the procedural violations suggested by the original concern and the interviews conducted by Corporate Security. Since no specific examples of procedure violations were identified, it was decided that selected welds would be visually examined by qualified Quality Control (QC) inspectors after demonstrating whether visual examinations would conclusively differentiate between welds made by the SMAW and GMAW-S processes. Two specimens were prepared (one using the GMAW-S welding process and one using the SMAW welding process). All QC inspectors who visually observed the specimens in the as-welded condition were readily able to differentiate between the specimens and to correctly identify the weld process utilized. An initial examination was then conducted of 68 non-safety related square groove butt welds in the as-welded condition on duct reinforcing angles. Welding of both reinforcing angles and companion angle flanges was affected by the specification change. However, companion angle flange welds could not be visually verified since the welds were ground flush after welding. No procedure violations were identified during the examinations.

Another visual examination was conducted by QC inspectors of a sample of 81 safety-related and two non-safety related welds. The 83 welds attach duct reinforcing angle-to-angle and were installed after January 24, 1989. This examination identified 14 safety-related welds and 2 non-safety related welds that were required to be welded using the SMAW process, but appeared to have been welded using the GMAW-S process. Review of the documentation associated with the 14 safety related welds disclosed that two welds were documented as using the GMAW-S process. The remaining 12 were documented as having been made using the SMAW process.

Based on this new information, Corporate Security was requested by Quality Assurance to ascertain why the apparent 14 safety-related specification violations occurred and who was aware that the violations were occurring. In the course of the investigation, information was obtained through interviews with HVAC Contractor personnel which caused Corporate Security to identify the following as causes for the apparent specification violations:

a. The HVAC Contractor's work force increase in January 1989 resulted in promotion of foremen who did not receive formal supervisory training and who, although marginally qualified, may have lacked adequate levels of competence.

b. Since no backfit was required when Specification 2323-MS-85 was revised on January 24, 1989, craft and craft supervisors inferred that the change did not affect the structural integrity of the weld.

c. Welders and craft supervision were aware that the process used could not be identified after a weld was subjected to grinding.

d. There was a period of general confusion and conflicting instruction regarding welding processes to be utilized for HVAC duct reinforcing groove welds after the January 24, 1989 revision.

e. Use of the SMAW process resulted in delays of 2 to 3 hours since the majority of the welding was GMAW-S and the welders had to change equipment to perform SMAW on the groove welds.

Corporate Security concluded that these factors collectively created a work environment which was not conducive to utilization of proper welding processes, and that these factors were unique to the HVAC welding effort during the period after January 24, 1989. With respect to awareness of procedural violations, the information obtained during the investigation suggested to Corporate Security that some foremen did not understand that assuring procedural compliance was part of their supervisory responsibilities and that sufficient time was not always allotted to the welders for use of the proper procedural techniques. Following receipt of the above information from Corporate Security, Quality Assurance reviewed information provided by the HVAC Contractor regarding their qualification program for foremen and welders. It was concluded that based on the HVAC Contractor's selection, training, and qualification processes, adequate assurance was provided that the foremen and welders were technically competent.

While the Corporate Security investigation was taking place, the 14 welds in question were examined by welding experts from the HVAC Contractor, TU Electric, EBASCO, and Bechtel. The opinions of those individuals varied as to the welding process utilized; however, it was acknowledged by the welding experts that the visual examinations were subjective and could not be relied upon as being conclusive regarding welding process utilized. The QC inspectors who originally determined that the 14 welds were made using the GMAW-S process also agreed it was a subjective and not a conclusive determination. The specimens which had been prepared to establish if the two welding processes could be differentiated were not made under the same conditions as the field welds. Consequently, the specimens exhibited a more consistent weld pattern which aided in differentiating the two weld processes used on the specimens. It was also determined that destructive examination of the welds would not yield a conclusive determination as to the weld process utilized. An interview with the welder who performed the majority of the 14 welds in question

resulted in his maintaining that he had used the SMAW process as required. This was partially confirmed by a QC inspector who stated that he witnessed the welder using the SMAW process to perform at least one of the specific welds in question.

In summary, the Comanche Peak Design Engineering and Quality Assurance review did not yield conclusive information regarding the utilization of the incorrect welding process in HVAC duct reinforcing. While objective evidence from surveillances, audits, and trends, as described in section 2 of this response, indicates that the condition was isolated or infrequent, it neither supports nor disproves the conclusions obtained during Corporate Security's investigations. Consequently, TU Electric, in determining the cause, corrective actions, generic implications and preventive actions for this issue assumed that groove welds were performed in the HVAC duct reinforcing area using the unqualified GMAW-S rather than the SMAW process after January 24, 1989.

Cause

The use of the GMAW-S process rather than the SMAW process for some square groove butt welds on HVAC duct reinforcing is attributable to the failure of some HVAC Contractor welders to use the process required by Specification 2323-MS-85 following its revision on January 24, 1989. The combination of factors found by Corporate Security as described above, contributed to this failure, except that the alleged inadequate technical competence level of the foremen and welders was not substantiated. Another factor which could have contributed to this condition was the practice by the HVAC Contractor of issuing HVAC welders more than one weld filler material and multiple technique sheets. This allowed the welder or his supervisor, rather than the welding engineers, to determine the process which would be used for a particular weld.

2. Corrective Steps Taken and Results Achieved

HVAC Concerns

Upon identification of the 14 welds described above, a nonconformance report (NCR) was issued to document the condition and provide for disposition of the welds. A Stop Work Order was issued to halt welding activities by the HVAC Contractor personnel. A Corrective Action Request (CAR) was initiated to document the apparent failure to comply with the specification and to document the required corrective actions.

The engineering contractor responsible for the HVAC design has assessed the impact of the misapplication of weld process after January 24, 1989 on the structural integrity of nuclear safety-related HVAC duct reinforcing. This assessment was performed through a review of engineering design documents to identify the joint designs utilizing

groove welds. The structural contribution of the groove welds was removed from the design analysis. The design was re-analyzed taking credit only for the fillet welds. The results of the reanalysis demonstrated that the structures will still perform as intended. Engineering has since designated the groove welds as not required for structural integrity. Since the GMAW-S and SMAW processes are both qualified for fillet welds, the integrity of fillet welds is assured regardless of process employed to produce the welds. Therefore, any instances of utilization of incorrect welding processes for HVAC duct reinforcing groove welds have no technical or safety significance with regard to the structural integrity of the HVAC duct reinforcing. No further action is considered necessary for HVAC duct reinforcing welds.

Generic Concerns

The concern expressed to SAFETEAM involved specific types of welds performed on HVAC duct reinforcing during a specific time frame, as described above under "Discussion". The Corporate Security investigation revealed a combination of causal factors which occurred during a specific period of time that contributed to the conditions described by the concern. The Corporate Security investigation and the reviews conducted by Engineering and Quality Assurance (as discussed futher below) indicate that this combination of causal factors is isolated to the HVAC area during the time frame of January 24 to November 8, 1989. This time frame represents the period from the issuance of the DCA until the issuance of the Stop Work Order.

To provide added assurance that the concern is isolated, a review of welding activities conducted by HVAC Contractor welders on other commodities was conducted. The HVAC Contractor welders were also utilized for welding on HVAC hangers, conduit supports, cable trays, cable tray supports, instrument tubing and supports, fire protection piping, and Construction Operations Support Group (COSG) welding. Welding activities by HVAC Contractor welders in each of these areas were reviewed. It was concluded that conditions did not exist that could reasonably be expected to result in the use of an unacceptable weld processes outside of HVAC duct reinforcing as described below.

HVAC Hangers

To determine if the misapplication of weld processes extended to HVAC hanger welding, the documentation for a sample of 60 HVAC hangers containing approximately 1800 welds was reviewed. This review verified that the correct weld process was used except for 3 welds on one hanger. For these 3 welds, the GMAW-S process was documented as having been used in lieu of the required SMAW process. An NCR was issued to document this condition. The sample was expanded to a total of 101 hangers. No other instances of the use of an incorrect welding process was noted. An additional sample of 41 hangers of the specific configuration (wall penetration hangers) on which the 3 cases were noted was reviewed and no further

instances were noted. In summary, a total of 142 HVAC hangers which contain approximately 4,000 welds (i.e., each hanger has an average of 30 welds) were reviewed and three instances of improper weld process were identified.

During this review, an apparent inconsistency was identified between a Weld Technique Sheet and the specification. However, it appears that the welders were correctly following the Technique Sheet. The apparent inconsistency has been documented on an NCR.

Conduit Supports

Although the procedure used for conduit support welding allows SMAW for all welds and GMAW-S for fillet welds, a review of weld filler material records and packages indicates that only the SMAW process was used on conduit supports. Also, the basic procedure requirements remained consistent during the time the HVAC Contractor worked on the conduit supports and no procedure or specification revisions changed allowable welding processes. It was concluded that the potential for misapplication of weld process did not exist for conduit support welding.

Cable Trays

The SMAW, GMAW-S, and Gas Tungsten Arc Welding (GTAW) processes were all authorized interchangeably for cable tray welds.

Cable Tray Supports

The procedure for welding cable tray supports allows the SMAW and GTAW processes to be used interchangeably. GMAW-S is not a procedurally allowed welding process option. These procedure requirements remained constant during the time the HVAC Contractor worked on the cable tray/cable tray supports. No procedure or specification revisions changed allowable welding processes. Consequently, the factors contributing to the process misapplication during HVAC welding did not exist for cable tray support welding.

Instrument Tubing and Supports

The instrumentation support welding procedure allows the SMAW and GMAW-S processes. However, instrumentation welders were not qualified to use the GMAW-S process. The programmatic controls in place prevented the foreman from requesting GMAW-S filler metal for the welder and prevented the welding material control room from issuing GMAW-S filler metal to the welder. Therefore, the potential of substituting the GMAW-S process for the SMAW process did not exist for instrumentation support welding.

The instrument tubing welding procedure allows the GTAW process only. Therefore, the potential of substituting the GMAW-S process for the approved process did not exist for welding instrumentation tubing.

Fire Protection Piping

The fire protection piping welding procedures allow the use of GTAW and SMAW. Each of these processes was qualified for all joint types and sizes and was allowed by the applicable specification. Therefore, either process would be acceptable. GMAW-S is not a procedurally allowed welding process option. Thus, fire protection piping welders could not be issued GMAW technique sheets or filler material.

COSG Welding

A small number of HVAC Contractor personnel were utilized in the COSG for performing a wide variety of welding. Unlike the above welding activities which were procedurally controlled and supervised by the HVAC Contractor, COSG activities are conducted directly under a TU Electric program in which the welders are requalified to TU Electric program requirements. Additionally, COSG welders are not issued more than one type of filler metal at a time except where dual processes are used on the same weld. Consequently, the causal factors which were unique to the HVAC contractor were not present and the potential for process misapplication did not exist.

In addition to the reviews described above, completed documentation packages encompassing 385 welds were also reviewed to determine if the correct welding process was used in cable tray hangers, conduit supports, instrumentation supports and tubing, and fire protection piping. Cable tray packages were not reviewed because all welding processes were acceptable. This review did not identify any incorrect use of the welding process.

In addition to the specific welding activities reviewed above, the following actions were taken to assess overall procedure compliance by the HVAC Contractor:

a. Following receipt of the concern expressed to SAFETEAM, the site ASME QA organization conducted a surveillance of HVAC Contractor procedure implementation, and conducted a records review of safety-related processes which were performed by the HVAC Contractor and inspected by ASME QC. The results of these activities indicate, that HVAC Contractor personnel have been complying with procedures.

b. Audits TCP-88-32, "Construction Welding Engineering Program Brown & Root and Fluor Daniel", and TCP-89-14,"Welding Engineering/ Radiography/Chicago Bridge and Iron Containment Liner/Attachment Weld Inspection/Westinghouse Steam Generator Modifications", were reviewed and no matters of concern were identified which would indicate a propensity by HVAC Contractor personnel to deviate from safety-related procedures.

c. QA trend data of safety-related deficiencies were reviewed to determine if there were any adverse trends in overall procedure compliance by the HVAC Contractor. The acceptance rate averaged from January 1989 through September 1989 was greater than 96%. No adverse trend was indicated with the HVAC Contractor's overall procedural compliance. These data indicate that, overall, the HVAC Contractor personnel were complying with procedures.

d. First line QC supervisors were interviewed to determine whether or not any observations relative to square groove butt welds on HVAC components had been noted by inspection personnel during their inspections. No matters of concern were identified.

e. The HVAC Contractor Site Welding Engineer directs the monitoring of welder activities for conformance to weld procedures by having Welding Engineering Technicians monitor welders through random surveillances. These surveillances are applicable to all HVAC Contractor welders, including those performing both safety and non-safety related welds, and include welder performance and documentation. The HVAC Contractor employed as many as seven (7) Welding Engineering Technicians during January 1989 to November 1989. During this timeframe, which is bounded by the specification revision and issuance of the Stop Work Order, each welder was surveilled virtually every week. During that period at least 2,700 welder surveillances were performed. Eight (8) instances of welders performing square groove butt welds using the GMAW-S process in lieu of the required SMAW process were identified as documented on the Welder Surveillance Checklist and were corrected. These 2,700 surveillances were almost equally divided between the GMAW-S and SMAW welding processes. Of the 1,398 SMAW surveillances, 855 surveillances were conducted on welders using the technique sheet which includes, but is not limited to, the groove welds in question. It could not be determined how many of the 855 surveillances were of groove butt welds. The eight instances indicate that, in general, the HVAC Contractor was cognizant of and was enforcing welding process requirements.

f. A review was performed of 113 tack weld QC inspection reports for HVAC Contractor welds made during the period January - September 1989. These inspections were performed in accordance with the Quality Control procedure for a tack weld inspection. The purpose of this procedure is to outline a method of Quality Control sample

inspections to maintain a level of confidence in a contractor's fitup tack welding activities. The inspection criteria includes verification of welder qualification, weld filler material, and welder qualifications to the welding procedure specification (WPS). The QC inspector documents the WPS number, welder ID number, and acceptability of the filler material and WPS on the inspection report. No significant deficiencies were noted on these inspection reports. This provides additional assurance that overall the HVAC Contractor was in compliance with the procedures including selection of the proper weld process.

g. SAFETEAM was requested to review its files to determine if there were indications that the HVAC Contractor had a management attitude that was not conducive to encouraging personnel to follow procedures or enforcing adherence to procedures. SAFETEAM reviewed this matter and did not identify evidence in their files either in the form of individual concerns or trends that suggested a management attitude of not striving to assure quality performance. Conversely, SAFETEAM concluded that the files revealed a positive attitude and evidence of HVAC Contractor initiative in taking aggressive action to rectify performance problems with its personnel.

To provide added assurance that similar conditions do not exist outside the HVAC Contractor's program, a review of other site welding procedures and associated QC inspection procedures was performed by the Quality Assurance Department to assure safety significant attributes (such as proper weld technique sheet) were adequately specified in the working level documents and adequately verified by QC inspection procedures. The review included revisions of procedures issued since a similar review was completed as a result of CAR 88-010. The results of this review indicates that site welding and QC inspection procedures appropriately address safety significant welding attributes and accept/reject criteria.

3. Corrective Steps Which Will be Taken to Avoid Further Violations

Based on the HVAC Engineering Contractor's re-analysis of the HVAC structures described in section 2 of this response, the applicable HVAC drawings have been changed to designate groove welds as non-structural welds. Specification 2323-MS-85 has been changed to allow the welding procedures used for non structural welds to be qualified in accordance with either ASME Section IX, AWS D1.1, or AWS D9.1. Thus, either the GMAW-S or SMAW process is acceptable for non-structural groove welds.

HVAC Contractor welding personnel have been reinstructed on selection of the correct welding process when an option is given.

HVAC Contractor welding personnel have been reinstructed regarding the need for strict procedural compliance, including emphasis that quality always takes precedence over schedule concerns.

HVAC Contractor supervisory personnel have been reinstructed regarding their responsibilities for assuring quality work by their subordinates, including assuring their subordinates are following procedures and emphasizing that quality always takes precedence over schedule concerns.

All safety-related HVAC square groove butt welds require fitup inspection. The applicable Quality Control procedures have been revised to require verification of weld technique sheet applicability at fitup inspection. This verification provides additional assurance that the proper weld process will be used for square groove butt welds.

The applicable construction procedure has been revised to state that the applicable technique sheet will be annotated on the work document by the Welding Engineer. Thus, the selection of the weld process to be used will be made by Welding Engineering rather than the welder or the foreman.

The applicable construction procedure has been revised to state that only one type and classification of electrodes, or bare wire, shall be issued at one time and only the applicable technique sheet will be issued with the filler material. This revision will facilitate determining the weld process that was used by a welder through filler material withdrawal records.

4. Date When Full Compliance Will be Achieved

Full compliance has been achieved.

NOTICE OF VIOLATION
ITEM B (445/8973-V-02)

B. Criterion XVII of Appendix B to 10 CFR 50 Part 50, as implemented by Section 17.0, Revision 1, of the TU Electric Quality Assurance Manual, requires that measures shall be established to assure that sufficient records to furnish evidence of the quality of items and of activities affecting quality are maintained.

Paragraph 6.3.3 of TU Electric Procedure CHV-101 states, in part, "complete the applicable portions of the welding checklist in accordance with Figure 7.1, HVAC Welding checklist Entry Instructions."

Contrary to the above:

The weld records for the companion angle flanges of the HVAC system which were required to provide evidence of activities affecting quality were determined to be inaccurate in that welders signed for shielded metal arc welds (SMAW) which they had not performed, as indicated by discrepancies in the applicant's welding checklist continuation sheets.

In responding to this violation, the applicant is requested to address the certification implications of welders utilizing the shielded metal arc welding (SMAW) process in that the inaccuracies of the applicant's weld records may have resulted in safety-related welds which utilize this process being performed by uncertified welders.

RESPONSE TO NOTICE OF VIOLATION
ITEM B (445/8973-V-02)

TU Electric accepts the violation and the requested information follows.

1. Reason for Violation

   The three instances of apparent documentation errors described in t NRC inspection report were identified during a review in which 128 HVAC weld checklist entries were compared with weld filler material field requisitions to determine if the welders withdrew weld filler material appropriate for the joint welded. In the three instances noted, the dates that the welder signed the HVAC welding checklist to signify completion of the weld did not correspond with the dates on the weld filler material field requisition.

   Acceptable explanations for the three (Welds F49, F52 and F17) instances were provided by the HVAC Contractor as follows:

   > Welds F49 and F52 were documented on the HVAC welding checklist as having been made using the SMAW welding process but the rod issue documentation indicates that only GMAW-S wire was obtained by the welder on the date (4/3/89) recorded on the HVAC welding checklist. The welder withdrew SMAW electrodes on 4/1/89. The date recorded

on the HVAC welding checklist signifies completion of the weld and that it is ready for QC inspection. The date recorded on the HVAC welding checklist is normally, but not necessarily, the same date the weld filler material was withdrawn.

The Weld F17 entry on the HVAC welding checklist reflects two welder identification numbers. Welder FD402 did not obtain SMAW weld rod on the date (4/12/89) recorded on the HVAC welding checklist according to rod issue documentation; however, he did withdraw SMAW weld rod on 4/8/89 and Welder FD352 withdrew SMAW weld rod on 4/12/89. The HVAC welding checklist documentation reflects Welder FD402 documented the filler material on 4/8/89 (which was consistent with HVAC Contractor management instructions) but either did not deposit material and did not remove the entry or started making the weld and was unable to complete it. Welder FD352 completed the weld and initialed the HVAC welding checklist indicating the weld was ready for QC inspection on 4/12/89.

A memorandum issued February 20, 1989, by the HVAC Contractor Construction Manager instructed the craft to enter appropriate information on the HVAC weld checklist in blocks 7, 8, 9 and 10 (welder symbol, filler material, heat lot number, and caddy spool number) immediately before a weld is made. This memorandum also stated that blocks 12 and 13 (construction personnel initials and date) shall be completed after the entire weld has been completed and inspected by craft and before requesting QC inspection, not at the time the weld is made. Therefore, in instances where a weld was made one day but not ready for QC inspection until a later date, the weld filler material requisition and HVAC welding checklist dates would not agree. The explanations for the HVAC welding checklist entries provided by the HVAC Contractor are consistent with the direction given to the craft. Therefore, TU Electric does not consider that the three examples described above provide conclusive evidence of inaccurate records.

Although there was an acceptable explanation for the three documentation conditions described above, Corporate Security was requested to ascertain the cause for the conditions during the investigations described in the TU Electric response to Notice of Violation 445/8973-V-01. The information obtained by Corporate Security indicated that a causal factor was that in some instances, the HVAC welding checklist was not filled out until welds were complete and ready for inspection, which at times involved a period of up to two weeks. In addition, welders stated that the entries on the HVAC welding checklists were not verified by personnel other than themselves which lead the welders to infer that the entries were not significant.

2. Corrective Steps Taken and Results Achieved

As a result of the conditions described in the TU Electric response to NOV 445/8973-V-01, which included potential documentation discrepancies, a Stop Work Order was issued to halt welding activities by HVAC

Contractor personnel. A Corrective Action Request (CAR) was initiated to document the indeterminate documentation and to document the required corrective action.

An additional sample of 200 entries on HVAC welding checklists was reviewed to ascertain the extent of these potential deviations. No additional instances were noted.

Based on the assumption that the GMAW-S welding process may have been misapplied on HVAC duct reinforcing and not reflected on the HVAC welding checklists, the HVAC engineering contractor assessed the effect of such an occurrence on the structural integrity of the ductwork. As described in the TU Electric response to Notice of Violation 445/8973-V-01, structural integrity of the ductwork is assured regardless of whether the GMAW-S or SMAW process is used. No further action is considered necessary for existing documentation.

As requested in the NOV, a review was performed to address the certification implications of welders utilizing the SMAW process in that the inaccuracies in the weld records may have resulted in safety-related welds which utilize this process being performed by uncertified welders.

Corporate Security investigated the concern that a welding superintendent had signed the name of a welder who did not perform the weld to a welding slip. (In the HVAC program there is no document known as a "welding slip". It is assumed that the individual was referring to the HVAC welding checklist.) This inquiry failed to produce any evidence that a welding superintendent had signed a welders name to a welding slip. During the interviews regarding these concerns, two employees stated that a foreman had signed their name to a welding slip when they had not performed the weld. In one of the two instances, the employee checked the weld and stated it had been performed correctly. The employee said this only occurred one time and the foreman was terminated for unrelated reasons shortly after the incident. The employee refused to provide any further information. The other employee stated this happened one time but could not recall the foreman's name or the location, package number, etc. The Corporate Security results suggest these were isolated occurrences. If these welds were non-nuclear safety, there would be no safety significance. If these welds were safety-related, there is reasonable assurance they would be acceptable because each safety-related weld is examined and accepted to verify compliance with weld inspection and base metal damage criteria by a QC inspector.

To assess the potential for welder qualifications being maintained using inaccurate weld filler material usage information, a hypothesized scenario was analyzed based upon welders maintaining their qualification by withdrawing weld filler material without productively consuming the material. HVAC contractor requirements state that welder certification for welding to AWS requirements expires if the welder is not engaged in the welding process for which he is qualified for a period exceeding

three months. This is more conservative than AWS requirements which allow a six month period. For this analysis, the number of times each welder withdrew SMAW filler metal from the weld material control room was determined for March and April 1989. This time period was selected for study because the number of HVAC Contractor welders peaked during this time. The review showed that except for 15 individuals, the welding material consumption histories for the two months for each welder indicate that multiple withdrawals were made for SMAW material. The circumstances for six of the fifteen individuals are explainable based on changes in their job status during the period examined. Regarding the remaining nine individuals, when the period examined was expanded to encompass February and May 1989, it was found that these nine individuals all had multiple withdrawals during a three month period. Based upon the assumption that a welder would not withdraw weld filler metal more than once for the sole purpose of maintaining his certifications since that is all that was necessary to maintain his certification, the weld material withdrawal information indicates that material was used in production welding. Therefore, it was concluded that welder certifications were properly maintained.

3. Corrective Steps Which Will be Taken to Avoid Further Violations

HVAC Contractor welding personnel have been re-instructed to document activities in a timely manner.

The applicable QC inspection procedure has been changed to require a verification of the proper weld technique sheet at the time of fitup. This will provide independent documentation of the type of weld process the welder intends to use.

HVAC Contractor project management personally re-emphasized the importance of procedure adherence to the HVAC Contractor employees involved in plant activities, and re-emphasized to supervisors their responsibilities for assuring adherence to procedures by their subordinates.

4. Date When Full Compliance Will be Achieved

Full compliance has been achieved.

NOTICE OF VIOLATION
ITEM C (445/8973-V-03)

C. Criterion XVI of Appendix B to 10 CFR 50, as implemented by Section 16, Revision 1, of the TU Electric Quality Assurance Manual states, in part, "Measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected...."

Contrary to the above:

The applicant failed to take prompt corrective action in response to the identification of conditions adverse to quality subsequent to the determination that procedural noncompliances had occurred during the fabrication of HVAC duct flanges which were identified by TU Electric Corporate Security on July 18, 1989, but which were not acted upon expeditiously by TU Electric management until this issue was identified at the NRC exit on October 3, 1989.

RESPONSE TO NOTICE OF VIOLATION
ITEM C (445/8973-V-03)

TU Electric accepts the violation and the requested information follows.

1. Reason for Violation

TU Electric was made aware of procedural concerns pertaining to groove welds on HVAC companion and reinforcing angles through a concern presented to SAFETEAM on June 23, 1989. SAFETEAM personnel requested Corporate Security to investigate the concern on June 28, 1989. Corporate Security conducted interviews with selected HVAC Contractor personnel and concluded that the concern was valid. Engineering personnel were contacted during July 1989 to determine the safety significance of the concern. The engineering personnel involved believed that all the HVAC groove welds were classified as Non-Nuclear Safety Related and therefore, did not affect the structural integrity of the HVAC ductwork. This information was conveyed to personnel investigating the concern. The possibility that safety-related groove welds may have been affected was overlooked. Since it was believed that there was no safety-related hardware concern, resolution of the allegation was given a lower priority than was appropriate. Additionally, in reviewing the sequence of events which occurred during the resolution of the SAFETEAM concern, it was determined that the implications of possible pervasive procedure violations could have been pursued more effectively if the various organizations involved had jointly defined the critical issues and agreed upon the division of organizational responsibilities required to resolve those issues.

2. Corrective Steps Taken and Results Achieved

In November, 1989 an examination of a sample of groove welds was conducted. The results of this examination indicated that safety

related welds were involved and that procedure violations had occurred. These concerns were investigated and resolved as described in the TU Electric responses to NOV's 445/8973-V-01 and 445/8973-V-02.

3. Corrective Steps Which Will be Taken to Avoid Further Violations

The Manager of Project Engineering has issued a memorandum to all project engineering personnel emphasizing the need for prompt and thorough investigation of deficiencies and discrepancies.

To enhance the process for identification and resolution of critical issues, representatives from the major CPSES organizations (e.g., Licensing, Engineering, Operations, Construction and Quality Assurance) will periodically meet to discuss the status of outstanding SAFETEAM concerns and the responsibilities of their organizations in resolving the concerns.

4. Date When Full Compliance Will be Achieved

The enhancements for resolution of SAFETEAM concerns described above will be implemented prior to fuel load.