

APPENDIX B

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-445/92-16 Unit 1 Operating License: NPF-87
50-446/92-16 Unit 2 Construction Permit: CPPR-127
Expiration Date: August 1, 1992

Licensee: TU Electric
Skyway Tower
400 North Olive Street
Lock Box 81
Dallas, Texas 75201

Facility Name: Comanche Peak Steam Electric Station (CPSES), Units 1 and 2

Inspection At: Glen Rose, Texas

Inspection Conducted: May 3 through June 13, 1992

Inspector: D. N. Graves, Senior Resident Inspector
R. M. Latta, Resident Inspector

Reviewed by:

L. A. Yandell
L. A. Yandell, Chief, Project Section B
Division of Reactor Projects

7/10/92
Date

Inspection Summary

Inspection Conducted May 3 through June 13, 1992 (Report 50-446/92-16)

Areas Inspected: Unannounced resident safety inspections of Unit 2 activities were performed within the following areas: Unit 2 plant status; followup on previously identified items; licensee action on 10 CFR Part 50.55(e) deficiencies; routine plant tours; preoperational test program implementation verification; Unit 1/Unit 2 interface controls; preoperational test witnessing; and instrumentation, components, and controls.

Results: General plant housekeeping has remained good with improving trends noted inside the containment building. The licensee's process for room/area access control was effectively implemented and appropriate provisions had been established for the protection of installed plant equipment and the temporary storage of safety-related construction materials. One strength was identified relative to the superior work controls which were demonstrated during the reassembly of the reactor vessel and internals (paragraph 6.1). The Unit 1/Unit 2 interface control process was determined to be properly implemented. One violation of the licensee's physical security plan was

identified (paragraph 5.2) in that a licensee-designated vehicle was left unsecured and unattended within the protected area with the motor running while not in use. Observed maintenance and prerequisite testing activities were well controlled and executed and preoperational test performance was effectively controlled. However, one violation was identified within the preoperational test program implementation area regarding the failure to provide the necessary reviews and documents to ensure that personnel injury and equipment damage did not occur during the performance of work on a battery room exhaust fan motor (paragraph 6.5). Additionally, two weaknesses were identified with respect to the implementation of corrective actions involving the limited scope of the technical justification for the closure of Industry Operating Experience Report WTB/89-06 and the lack of sufficient detail to support the conclusion documented in Reportability Evaluation Form SN-479 (paragraph 9). During this reporting period, one open item and five significant deficiency analysis reports were reviewed and closed.

Inspection Conducted May 3 through June 13, 1992 (Report 50-445/92-16)

Areas Inspected: Unit 1 inspection activities were limited to the areas associated with the violation of the licensee's physical security plan (paragraph 5.2) and the weakness involving the implementation of corrective actions (paragraph 9).

Results: For the common Unit 1/Unit 2 protected area, one violation of the licensee's physical security plan was identified in that a licensee designated vehicle was left unsecured and unattended within the protected area with the motor running while not in use.

DETAILS

1. PERSONS CONTACTED

TU ELECTRIC

J. Ardizzoni, Administrative Security Supervisor
M. R. Blevins, Director of Nuclear Overview
D. C. Dillinger, Plant Analysis
T. L. Heatherly, Licensing Engineer
T. A. Hope, Unit 2 Licensing Manager
L. W. Hurst, Project Manager
B. T. Lancaster, Manager, Plant Support
S. S. Palmer, Stipulation Manager
D. E. Pendleton, Unit 2 Regulatory Services Manager
A. R. Scott, Vice President, Nuclear Operation
J. C. Snyder for Startup Test Manager
R. L. Spence, Unit 2 Quality Control Manager
C. L. Terry, Chief Engineer
J. E. Thompson, Licensing Engineer
R. D. Walker, Manager of Regulatory Affairs
C. A. Wells, Unit 2 Staff Asssistant
K. F. Williamson, Project Construction
J. E. Wren, Construction Quality Assurance Manager

CITIZENS ASSOCIATION FOR SOUND ENERGY (CASE)

O. L. Thero, Consultant

In addition to the above personnel, the inspectors held discussions with various operations, engineering, technical support, maintenance, and administrative members of the licensee's staff.

2. UNIT 2 PLANT STATUS (71302)

Reassembly of the reactor vessel internals, including the installation of the reactor vessel head and the tensioning of the stud nuts, was successfully completed. The Train B emergency diesel generator underwent initial operational testing subsequent to extensive overhaul activities. Preparations for filling of the reactor coolant systems to support hot-functional testing is proceeding slightly behind schedule. Construction completion, preoperational testing, prerequisite testing, and system flushing activities are continuing in support of identified project milestones.

3. FOLLOWUP ON PREVIOUSLY IDENTIFIED ITEMS (92701)

3.1 (Closed) Open Item 446/8868-01: Cable Bus Duct Covers

This item involved a potential cable separation criteria discrepancy and the identification of foreign material in several of the bus ducts associated with the Unit 2 auxiliary transformer.

During this reporting period, the inspectors reviewed the licensee's corrective actions associated with this issue which were implemented by Design Change Authorization (DCA)-44041. Specifically, these corrective actions included the removal of the existing mesh covers and the replacement of these components with suitable ventilated covers. Based on the reviews of the implementing DCA and field inspections of the installed replacement bus duct covers, it was determined that the revised design was adequate to prevent the intrusion of foreign material.

The licensee's corrective actions also included an evaluation of the modified bus duct covers to confirm their compliance with the separation requirements of Regulatory Guide 1.79. The results of this evaluation, which were contained in Attachment 20 of Design Basis Document (DBD)-EE-057, concluded that vented covers on the subject cable bus ducts were considered equivalent to solid tray covers, thus the separation requirements of Regulatory Guide 1.75 were satisfied.

Based on the results of system walkdowns, the review of the associated DCA, and the examination of the supporting engineering evaluation, it was determined that the licensee had implemented appropriate corrective actions to address the identified concerns. Therefore, this open item is closed for Unit 2.

4. LICENSEE ACTION ON 10 CFR PART 50.55(e) DEFICIENCIES (92700)

4.1 (Closed) Construction Deficiency Significant Deficiency Analysis Report (SDAR) CP-86-68: "Weather Protection for Class 1E Components"

This deficiency involved the identification of water and corrosion products inside numerous Class 1E terminal boxes used in outdoor installations. As previously documented in NRC Inspection Report 50-445/89-71; 50-446/89-71, this construction deficiency was reviewed and closed for Unit 1.

With respect to Unit 2, the inspectors reviewed the licensee's corresponding corrective actions which involved the revision of the controlling Specification CPES-E-2004, Revision 1, "Electrical Installation," in accordance with DCA-93433, Revision 9, to include instructions for the proper sealing of outdoor conduits and junction boxes. The inspectors also conducted an examination of selected Class 1E junction boxes and reviewed a sample of the implementing work documents, including Construction Work Packages C23G05359, C23G05306, C23G04763, C23G05302, C23G05304, and TUE Form 91-3527.

Based on the above documentation reviews and inspection results, it was determined that the licensee had implemented appropriate corrective actions to address the identified deficiency. Therefore, this construction deficiency is closed for Unit 2.

4.2 (Closed) Construction Deficiency SDAR CP-87-00: "RHR Relief Valve Piping"

This issue involved a design deficiency associated with the relief valve piping connected to the residual heat removal (RHR) suction piping. Specifically, the physical arrangement of the RHR pump suction relief valves inlet piping (i.e., excessive elevation and distance) prevented the associated valves from meeting their design basis relieving requirements. As previously documented in NRC Inspection Report 50-445/89-12; 50-446/89-12, this item was reviewed and closed for Unit 1 based on a design modification which relocated the relief valves closer to the RHR suction piping.

During this reporting period, the inspectors reviewed the corrective actions associated with this design deficiency for Unit 2. As determined by the inspectors, these actions included the relocation of the RHR pump suction relief valves (2-8708 A & B) to comply with the requirements of the ASME Boiler and Pressure Vessel Code, Section III, and the revision of DBD-ME-260, "Residual Heat Removal System," to provide criteria governing the installation of these relief valves.

Additionally, as documented in TU Electric's letter, TXX-88109, dated January 19, 1988, the licensee performed an evaluation of other relief valve installations which required specific mass flow rates. As stated in this letter, no other reportable conditions were identified and the associated process calculations, pipe support analyses, and DBD-ME-260 were enhanced to preclude repetition and to provide adequate guidance for future modifications.

Based on the review of the associated documentation and field verification inspections, it was determined that the licensee had implemented appropriate corrective actions to address the identified design deficiency. Therefore, this construction deficiency is closed for Unit 2.

4.3 (Closed) Construction Deficiency SDAR CP-88-08: "Battery Room Heaters"

This deficiency involved the determination that the Class 1E battery room heaters were not powered from redundant safety-related power supplies and that these components were not seismically qualified. As previously documented in NRC Inspection Report 50-445/89-73; 50-446/89-73, this issue was reviewed and closed for Unit 1.

During this reporting period, the inspectors evaluated the licensee's corresponding corrective actions for Unit 2 which were delineated in TU Electric's letter, TXX-88067, dated January 13, 1988. These corrective actions involved the revision of the controlling design basis document, DBD-ME-305, to specify the appropriate design temperature requirements for the

affected battery room heaters, as well as the replacement of the unit heaters in the Class 1E battery rooms with Class 1E seismically qualified components. The inspectors reviewed Revision 3 of DBD-ME-305 and the implementing work documentation which included DCA-66141, Revision 2; Startup Work Authorizations (SWAs) 77601, 76218, and 76445; and the associated construction travelers and quality control inspection reports. Additionally, the inspectors performed field verification walkdowns of the Class 1E battery room heaters and determined that the associated work activities had been completed.

Based on the review of the referenced work documentation, the DBD revision, and the results of field verification walkdowns of the Class 1E battery rooms, it was determined that the licensee had implemented appropriate corrective actions to address the identified deficiency. Therefore, this construction deficiency is closed for Unit 2.

4.4 (Closed) Construction Deficiency SDAR CP-88-20: "High Energy Line Break Detection and Mitigation"

This deficiency involved instrumentation utilized in the detection and mitigation of high energy line breaks (HELBs) located outside containment. Specifically, these instruments are intended to ensure that safety-related equipment located in the vicinity of postulated breaks will not exceed established environmental qualification limits before the break can be detected and mitigated. However, as determined by the licensee, the instruments which were located in the chemical volume and control system (CVCS) letdown line and the auxiliary steam system lines did not meet the single failure criteria provided in Branch Technical Position APCS 3-1 and the Final Safety Analysis Review (FSAR). With respect to Unit 1, these deficiencies were reviewed and closed as previously documented in NRC Inspection Report 50-445/89-47; 50-446/89-47.

During this reporting period, the inspectors reviewed the licensee's corresponding corrective actions for this deficiency which were delineated in TU Electric's letter, TX-88157, dated January 28, 1988. These actions included the addition of a redundant HELB pressure switch and alarm in the CVCS letdown line and the modification of the auxiliary steam system HELB pressure switches to provide diverse/redundant power supplies such that the failure of one power source would not render the HELB system inoperable.

Based on the inspectors' reviews of the affected system modifications and the associated work documentation, it was determined that the licensee had implemented appropriate corrective actions to address the identified deficiency. Therefore, this deficiency is closed for Unit 2.

4.5 (Closed) Construction Deficiency SDAR CP-91-09: "Incomplete Fusion on Tube Sheet Seam Weld"

This potential deficiency involved the identification of a welding defect in the seam weld on a tube steel pipe support. Specifically, as documented on TUE Form 91-2551, during the inspection of large bore Pipe Support

Hanger FW-2-020-700-C52R, the manufacturer's weld on the inside seam of the tube steel member was identified as having incomplete fusion.

Subsequent to the identification of this issue, the licensee performed a technical evaluation documented in Calculation FW-2-200-700-C52R, Revision 2, which concluded that the subject pipe support would have performed its intended function during both design operating and accident conditions. Based on the results of this calculation, the licensee determined that this condition was not reportable as documented in TU Electric's letter, TXX-92183, dated April 16, 1992. Additionally, in order to determine the generic implications of this issue, the licensee performed inspections of all similarly sized material on site (ie., 10" X 10" X 5/8" tube steel) which was purchased under Stock No. TSN 296567. The results of these inspections, which were documented in the Reportability Evaluation Form SN-499, established that all of the available tube steel on site had acceptable fusion along the entire length of the internal seam weld.

Based on the inspectors' reviews of the technical evaluation contained in the previously referenced calculation and the results of the inspections of similar tube steel on site, it was determined that the licensee had appropriately addressed the reportability aspects of this issue and that the identified condition had been properly dispositioned. Therefore, this item is closed for Unit 2.

5. UNIT 2 TOURS (71302)

During this inspection period, routine tours of the Unit 2 facility were conducted in order to assess equipment conditions, security, and adherence to regulatory requirements. In particular, plant areas were examined for evidence of fire hazards and installed instrumentation damage and to determine the acceptability of system cleanliness controls and general housekeeping. Additionally, the inspectors conducted evaluations of existing plant programs for the preservation and maintenance of installed systems and components.

During the performance of routine plant tours, one violation of the licensee's physical security plan was identified. Housekeeping, including the control of combustible materials, was determined to be good with improving trends noted inside the containment building. Additionally, it was determined that appropriate provisions for the segregation and control of Q-listed material had been implemented. Based on the results of a selected examination of Unit 2 areas, it was determined that the access control program as defined by Procedure ZPP-2.03, Revision 0, "Room/Area Access," was being effectively implemented with approximately 99 rooms out of a total population of 211 rooms currently under access control. The inspectors also determined that installed systems and components were being protected and that, in general, the observed work activities were well controlled.

5.1 Fire Brigade Response

On May 15, 1992, at approximately 2:27 p.m. the inspectors witnessed the response of the onsite fire brigade to a reported fire in the Unit 2 auxiliary building, Train B switch gear room, elevation 852 feet. The reported fire was associated with Group B Isolation Transformer CP2-EPTRNT-06, which provides non-vital power for the pressurizer heater banks. No personnel injuries resulted from this event and the response of the fire brigade was excellent. The inspectors confirmed that the equipment was properly tagged out and that appropriate precautions had been exercised during the conduct of the associated power and distribution panel testing.

Subsequent to this occurrence, the inspectors reviewed TU Evaluation (TUE) Form 92-5185, which had been issued to address the technical aspects of this event. Based on the review of this TUE Form, it was determined that the internal defects, which caused the fault, were properly identified and that the specified corrective actions appropriately addressed the identified deficiency.

5.2 Physical Security Program

On June 9, 1992, at approximately 11:40 a.m. the inspectors observed a licensee designated vehicle (LDV No. 0069) inside the protected area which was unattended with the motor running. The inspectors reported this occurrence to security personnel who documented the details of this event on Security Field Report 1322-92. The inspectors noted that the vehicle, which was an 18-wheel tractor trailer, was left unsecured, unattended, and running while the operator was checking on the intended lay-down area for the trucks cargo (approximately 30 yards from the truck). Subsequent to the identification of this issue, the inspectors evaluated the referenced security field report and reviewed the applicable sections of the CPSES Physical Security Plan. Based on these reviews, it was determined that this logable occurrence represented a violation of paragraph 6.2.3.1 of the Physical Security Plan which requires that licensee designated vehicles will be locked or secured when not in use within the protected area. Accordingly, this occurrence is identified as a violation (445/9216-01).

6. PREOPERATIONAL TEST PROGRAM IMPLEMENTATION VERIFICATION (71302)

Relative to the preoperational test program, the inspectors evaluated the implementation of the licensee's management control system to determine if jurisdictional controls were observed for system turnovers, that systems/components undergoing testing were properly tagged, that maintenance activities and preoperational tests were adequately performed, that test discrepancies were properly identified, and that test procedures and operational verifications were satisfactorily conducted.

6.1 Reactor Vessel Internals Reassembly

During this reporting period the inspectors witnessed selected portions of the reactor vessel internals reassembly, which was performed in accordance with Construction Traveler TCX-RCPCR-01-84121C. In particular, the inspectors observed the placement of the lower internals into the vessel, which included the installation of the six irradiation specimens in the guide tubes attached to the neutron shield pads. Additionally, the inspectors witnessed the installation of the reactor vessel head and the tensioning of the stud nuts. All observed work activities, including the provisions for temporary protection and equipment cleanliness control for the reactor vessel internals and head, were effectively performed and appropriate provisions were established for area access control. The inspectors also confirmed that the load cell used to monitor component placement activities had been properly calibrated and that the associated high and low alarm setpoints had been properly established.

No deficiencies were identified during the conduct of these installation activities and the implementation of the established work controls was judged to be superior.

6.2 Feedwater Isolation Valve Maintenance

The Unit 1 feedwater isolation valves had plant operating pressure and temperature limitations imposed via the Technical Requirements Manual as a result of the valve bonnets that had not been impact-resistance tested. This issue was previously documented and resolved in Nonconformance Report 89-11742, Revision 1. However, Unit 2 Project management elected to replace the Unit 2 feedwater isolation valve bonnets with new components which satisfied all of the required testing such that the operating pressure and temperature limitations would not be required. During this reporting period, the inspectors reviewed selected aspects of the feedwater isolation valve bonnet replacement process.

Specifically, the inspectors reviewed the documentation and completed maintenance activities associated with the removal and replacement of the valve bonnets on Feedwater Isolation Valves 2HV-2134, -2135 -2136, and -2137, which were conducted in accordance with Startup Work Packages Z-18156, Z-18288, Z-18155, and Z-18386, respectively. These work packages were reviewed for completeness with respect to the recording of test equipment calibration data, the inclusion of quality control and inspection points, revision authorizations, equipment tag number verifications, and the identification of discrepant conditions. Additionally, the feedwater isolation valves were inspected, to the extent possible, to verify that the work had been performed as documented.

The document reviews indicated that the packages were properly authorized, that the work groups had performed a double verification to ensure that they were working on the correct component, that the test equipment recorded in the documents was appropriate for the tasks as indicated in the maintenance

procedures referenced in the work documents, and that all quality control inspection points had been performed and documented. As a result of these reviews, it was noted that Step 8.5.2.8 of Maintenance Procedure MSM-CO-8802, "Borg-Warner Pressure Seal Gate Valve Maintenance," referenced in Document Z-18386, was not signed by the performing craft individual; however, the specified craft witnessing signature and a quality control witnessing signature for this step were signed. This issue was brought to the attention of the cognizant foreman who indicated that he would verify that the step was performed and that the appropriate craftsman would complete the documentation. No other deficiencies were identified during these documentation reviews.

The inspectors also verified, based on external observations, that the valve assemblies reflected the completed status of the work documents. No discrepancies were identified and completed work packages accurately reflected the refurbished condition of the subject valves.

The inspectors also reviewed TUE form 92-4741, which was generated to document and track the return of three of the isolation valve bonnets from the investment recovery yard. The review of this disposition included the examination of the documentation that verified the traceability of the bonnets back to the original receipt inspection that was performed in February 1990. The verification plan, VP-92-0648, for reinspection of the valve bonnets following their return from investment recovery and prior to return to the warehouse for use was reviewed and it was found to satisfactorily address the physical condition of the bonnets and their traceability.

6.3 Motor-Driven Auxiliary Feedwater Pump Prerequisite Test

The inspectors witnessed selected aspects of the prerequisite testing associated with Motor-Driven Auxiliary Feedwater Pump 2-02 which was conducted in accordance with prerequisite Test Procedure XCP-ME-1, "Initial Pump Operation." In particular, the inspectors verified that the prerequisite valve lineups were appropriately performed and that the required test data was properly recorded. No procedural or operational deficiencies were observed; however, it was noted that the test was terminated because the pump outboard bearing temperature did not stabilize. Subsequent to the termination of this test, a startup work package, SWF-Z-18394, was generated to troubleshoot and repair the pump which resulted in the replacement of a balancing drum and a thrust bearing. Following this maintenance activity, the pump was satisfactorily operated with minor packing adjustments remaining.

6.4 Emergency Diesel Generator Testing

The inspectors observed the control room and operator activities associated with the performance of special Test Procedure 2CP-ST-30-04A, "Initial Diesel Generator Run Train A." The procedure was verified to be the latest revision which incorporated the current test change notices. The engine was being operated at 100 percent load in accordance with the special test procedure which referenced System Operating Procedure 609R, "Diesel Generator System." The operator was attentive to the engine and generator parameters indicated in

the control room and was aware of the test status. The control room was in continuous communication with the diesel generator room during the observed test performance. No personnel or operational deficiencies were observed during these activities. Attempts to reach 110 percent of rated load were unsuccessful due to approaching the operating limit for engine turbocharger inlet temperature. Vendor representation was on site assisting in the engineering evaluation of this condition and testing activities and evaluations were continuing at the conclusion of this reporting period.

6.5 Battery Exhaust Fan Ground

As previously documented in NRC Inspection Report 50-445/92-12; 50-446/92-12, an event occurred on April 28, 1992, which involved an inadvertent ground on a battery room exhaust fan as a result of maintenance activities on what the electricians believed was a deenergized fan motor. Subsequent to this occurrence, the licensee established a team to investigate the incident, in order to determine the root cause, and develop proposed corrective actions based on the team's findings. The initial task team's evaluation was completed during this reporting period and their findings and recommendations were reviewed by the inspectors.

The root causes as determined by the licensee, were inadequate communications during battery exhaust fan work sequencing, which led to authorization to perform work on a component that was still energized, and inadequate craft familiarization with the meaning of the temporary modification tag that was attached to the battery exhaust fan motor. As determined by the inspectors, the clearances associated with the work activities would have deenergized the fan motor had the temporary modification not been installed. Additionally, several other factors were identified that, while not root causes, contributed to the conditions that resulted in the event. The licensee's evaluation was reviewed by the inspectors and was determined to be thorough and comprehensive.

As a result of the findings of the licensee's evaluation task team, several corrective actions were identified and initiated. These included the development of an enhanced tag familiarization training module and preparation of a site-wide letter to discuss the need for a heightened awareness of the operational environment on Unit 2. The licensee also initiated the review and evaluation of the various processes used for review, sequencing, coordination, and approval of work activities by the startup and construction departments. The determination of final corrective actions will be made following the completion of these reviews.

While the licensee performed a thorough initial investigation into the event, the issuance of work documents to the field without adequate protection for the individuals performing the work has potentially serious implications. Therefore, the failure to provide the necessary reviews to ensure that personnel injury and equipment damage did not occur was identified as a

violation of Criterion V of 10 CFR Part 50, Appendix B, in that the work document, ETP-1191, on activities affecting quality was not appropriate to the circumstances (446/9216-02).

6.6 Summary of Findings

Preoperational testing and support activities were generally well controlled and executed. A strength was identified relative to the superior work controls demonstrated during the reassembly of the reactor vessel internals and the installation of the reactor vessel head. However, one violation was identified with respect to inadequate work package reviews associated with a battery room fan motor, which resulted in potential personnel injury and damage to installed plant equipment.

7. UNIT 1/UNIT 2 INTERFACE CONTROLS (71302)

The inspectors reviewed the administrative controls associated with the use of Unit 1 auxiliary steam for Unit 2 activities. Specifically, the Unit 1 auxiliary steam system was being used to supply steam to Unit 2 for purging of the turbine driven auxiliary feedwater pump piping. Design Change Notice (DCN) 3590 revised auxiliary steam drawing M1-213 to remove the LC-2 (a designation used to note locked valves for Unit 1/Unit 2 separation) designation from the auxiliary steam cross-connect valves, XSA-0233 and XSA-0234. The inspectors also reviewed the design change notice, including the 10 CFR Part 50.59 review and subsequent Safety Evaluation No. 92-027. This evaluation determined that no adverse safety impact or reduction in the margin of safety would result from the proposed change and no unreviewed safety question would result. The design change was approved by the station operations review committee on January 15, 1992. Although the two valves were no longer designated as LC-2, they were still under the facility's locked valve program as implemented by Operations Department Administrative Procedure ODA-403, "Operations Department Locked Valve Control," and Operations Work Instruction OWI-103, "Locked Valve List and Deviation Control." Valve XSA-0233 was also removed from the Unit 1/Unit 2 interface list in accordance with Station Administrative Procedure (STA)-821, "Unit Interfaces and Isolation Control Program," on January 17, 1992. The control of Valve XSA-0233, following removal from the interface list, was under the jurisdiction of nuclear operations as opposed to the startup organization as a result of the auxiliary steam system being formally accepted by the operations organization earlier this year. The remaining auxiliary steam valves designated as unit interface valves were verified to be under the operations locked valve program as well as the interface control program.

A temporary modification, 92-2-001, Revision 2, was utilized in accordance with STA-602, "Temporary Modifications," to authorize the installation of temporary piping from the Unit 2 auxiliary steam system up to and including the first isolation valve in the temporary piping. The temporary piping downstream of the first isolation valve and connected into the Unit 2 auxiliary feedwater pump turbine steam supply piping was authorized under temporary modification 4556 in accordance with Startup Administrative

Procedure SAP-13, "Temporary System Modifications." Both temporary modifications were reviewed by the inspectors and no deficiencies were identified.

The inspectors' review of these controls and activities concluded that the use of Unit 1 auxiliary steam to perform steam flushing activities on Unit 2 was appropriately controlled and performed in accordance with approved site procedures.

8. PREOPERATIONAL TEST WITNESSING (70441, 70312)

The inspectors observed portions of the performance of preoperational Test Procedure 2CP-PT-02-10, "480 Volt Class 1E Switchgear and Motor Control Centers." During the performance of this test evaluation, the inspectors verified that the correct revision of the procedure was being utilized, that the test engineer had verified the prerequisites prior to test performance, that steps were being documented as performed, that deficiencies were being documented and resolved, that test procedure changes were being properly incorporated, and that testing activities were being performed in accordance with the approved test procedure and station administrative requirements. The test procedure was determined to be well developed to support the prescribed testing activities, with only minor procedural changes identified during the observed portions of the test. No deficiencies were observed by the inspectors and the observed test activities were properly performed.

9. INSTRUMENTATION, COMPONENTS, AND SYSTEMS (52053, 52055)

During this reporting period, the inspectors evaluated selected aspects of the licensee's programs associated with safety-related instrumentation and control systems. These evaluations were performed in order to determine if these activities were being accomplished in accordance with regulatory requirements, final safety analysis report commitments, manufacturer's recommendations, and approved procedural controls. Specifically, the inspectors examined installation, maintenance, and testing activities associated with the Westinghouse supplied solid state protection system (SSPS). The SSPS for Unit 1 and Unit 2 consists of two redundant trains (A and B), which provide two types of protective outputs (reactor trip and engineered safety features). The SSPS also supplies data to the control board/computer demultiplexer, rod control systems, and the digital rod position indication systems. Each train cabinet consists of an input relay bay, a logic bay, and an output relay bay. The SSPS receives input from various plant process and protection instrumentation and, based on those inputs, the logic of the SSPS initiates reactor trip and/or engineered safeguards features (ESF) actuation.

The inspectors reviewed the installation procedures associated with the SSPS system including Specification CPES-E-2004, Revision 1, "Electrical Installation," and Procedure INC-208, Revision 0, "Cable Terminations and Splicing." Additionally, the inspectors performed an examination of the wiring terminations in the SSPS input and logic cabinets and reviewed the

startup work packages (SWPs) associated with wiring termination inspections. In particular, the inspectors reviewed SWPs 12603, 12604, 13044, 13045, 17693, and 16580.

During the review of these SWPs, the inspectors determined that the 100 percent visual inspections of the TERMI-POINT connections had been accomplished for Unit 2 and that improperly installed clips had been documented on the SWPs and corrected in accordance with Procedure INC-208. This rework consisted of replacing and pull testing 42 clips for Train A and 21 clips for Train B of the SSPS. However, these deficient conditions were not documented on a TUE Form and the pull testing of a random sample of 125 TERMI-POINTS connections for each train of SSPS had been deleted from the associated SWPs. The 100 percent visual inspection of the approximately 2600 clips per train, along with the pull testing of a random sample of clips, was originally recommended by Westinghouse Technical Bulletin NSP-TB-89-06 in order to verify the adequacy of the manufacturers installations.

As determined by the inspectors, the 100 percent visual inspections of the TERMI-POINT connections in the SSPS were performed; however, the associated pull testing had been deleted from the licensee's proposed work plans for both Units 1 and 2 as a result of internal memo, CPSES 9128835 dated November 11, 1991. This memo, which was developed by the licensee's system engineering department, was used to close IOER WTB-89-06 in accordance with Procedure NQA 2.30, Revision 0, "Industry Operating Experience Report Assessment," based on the following rationale:

- . There have been no failures of TERMI-POINT connections at Comanche Peak.
- . A search of the Nuclear Plant Reliability Data System (NPRDS) database found no TERMI-POINT failure reports.
- . Because of the point-to-point wiring method used, the TERMI-POINT connections in SSPS cabinets are extremely hard to access. Pull testing would require that a majority of the wires be disturbed to gain access. This would put undue stress on the wires and connections.
- . The pull test was intended for new equipment. Pull testing equipment that has been in service for many years can shift the clip and wire of an acceptable connection such that dust or oxidation is introduced to the area between the wire and connector post.
- . SSPS TERMI-POINT connection quality is verified every 2 months by performance of Technical Specification required actuation logic tests.

Additionally, for the rod control system and the digital rod position indication (DRPI) system which utilized TERMI-POINT connections, the licensee recommend that visual inspections not be performed based on the following reasons:

The system operating history and testing has adequately demonstrated the circuit continuity of the connections.

No failures have occurred with TERMI-POINT connections.

Inspection of the TERMI-POINTS would require undesirable equipment disassembly to gain access. This would introduce a risk of damaging the system.

The rod control system and DRPI systems are nonsafety-related systems. A random failure of the circuit would not impact the ability to maintain plant safety.

Based on the review of this memo, the inspectors questioned the technical justification for deleting this verification attribute from the actions which were documented in Westinghouse Letter WPT-12388, dated December 6, 1989, from the Westinghouse Manager of Comanche Peak Projects to the Executive Vice President of TU Electric. Specifically, this letter documented Westinghouse's acceptance of TU Electric's position that: (1) pull tests of the SSPS TERMI-POINT clips for Unit 1 would be performed at the first refueling outage; and (2) visual inspection of the control board/computer demultiplexer, rod control system, and DRPI system TERMI-POINT clips, would be performed by the first refueling outage.

Subsequent to the identification of this concern, the inspectors conducted discussions with the licensee's system engineering department, the IOER assessment group, startup organization personnel, and representatives of the Westinghouse Electric Corporation in order to establish the intent of the recommendations contained in Technical Bulletin NSP-TB-89-06. As a result of these discussions, it was ascertained that, despite the stated expectations of Westinghouse, both pull testing of a sample of the TERMI-POINT connections in the SSPS and visual inspections of the control board/computer demultiplexer, rod control, and DRPI systems would be performed at least by the first refueling outage for Unit 1. These activities, which were intended to verify correct installations, were not conducted and were not scheduled to be performed for either unit.

Based on the inspectors' reviews of the documentation associated with these activities, a weakness was identified in that the licensee had not implemented complete verification efforts, which were intended to ensure the integrity of the SSPS for both Units 1 and 2. Specifically, the corrective actions associated with IOER Followup Assessment Report WTB/89-06, dated January 6, 1992, contained a limited technical justification for not performing the recommended actions of Westinghouse Technical Bulletin NSD-TB-89-06, which directed pull testing of a random sample of 125 TERMI-POINT connections in the SSPS as well as 100 percent visual inspection of the control board/computer demultiplexer, rod control, and digital rod control position indication TERMI-POINT connections.

The inspectors also evaluated the reportability aspects of the 23 deficient TERMI-POINT connections identified in the Unit 1 SSPS and the 63 deficient clips identified in the Unit 2 SSPS. With respect to Unit 1, the licensee performed a reportability evaluation in accordance with Procedure NEO 9.01 "Evaluation and Reporting of Adverse Conditions Under 10 CFR Part 21 and 10 CFR 50.55(e)." The results of this evaluation, which were documented on Form SN-479 dated December 18, 1989, concluded that this issue was not reportable pursuant to 10 CFR Part 50.55(e). This conclusion was based in part on the results of the previously mentioned visual inspections and the assertion that no SSPS failure had been attributed to faulty TERMI-POINT clip connections at CPSES. However, as stated in SN-479, the licensee determined that, in extreme cases of cocked TERMI-POINT clips, the loss of control circuitry in one train could occur. It was not clear from the reportability evaluation how, given that deficiencies were identified in the control circuitry of both trains of SSPS, the licensee concluded that the simultaneous failure of both trains of SSPS could not occur due to TERMI-POINT clip failures.

Given that deficient TERMI-POINT connections were identified in both trains of the SSPS and that the single failure criterion of one train of this safety-related system was utilized in the accident analysis assumptions of the FSAR, Chapter 15, the licensee's conclusion that the identified deficiencies were limited to a single train could not be established from the documented evaluation. As determined by the inspectors, a complete evaluation of the reportability aspects of this issue should have considered the effects of the discrepant connectors in both trains of the SSPS, and the effects of these conditions should have been factored into the reportability evaluation.

With respect to the deficient TERMI-POINT connections, which were identified in both trains of SSPS for Unit 2, the inspectors determined that the licensee utilized the same rationale, which was developed for Unit 1 to conclude that this condition was not reportable pursuant to the provisions of 10 CFR Part 50.55(e). It is noted that the reportability process for Unit 2 is governed by Procedure 2PP.9.01, Revision 2, "Evaluating and Reporting Adverse Conditions Under 10 CFR 50.55(e) And 10 CFR 21," which superseded Unit 1 Procedure NEO 9.01.

In conclusion, a weakness was identified in the licensee's corrective action process in that the operational impact of the identified deficiencies in the control circuitry of both trains of the SSPS were not completely addressed in Reportability Evaluation Form SN-479. However, upon further evaluation, the inspector determined that the reportability determination was acceptable.

Subsequent to the identification of the weakness associated with the limited scope of the technical justification for the closure of IOER WTB/89-06 and the lack of sufficient detail to support the conclusion documented in Reportability Evaluation Form SN-479, the licensee initiated a comprehensive action plan, which included the issuance of TUE Form 92-5393 to evaluate the results of the TERMI-POINT connection repair/replacement activities. This process, which is controlled by Procedure 2PP-3.05, Revision 2, "Processing of

TU Evaluation Forms (TUE) and Conditional Release Requests (CFRs)," mandates the evaluation of the identified deficiencies for potential reportability in accordance with Procedure 2PP-9.01, Revision 2. Additionally, the programmatic controls of Procedure STA 5.04, Revision 8, "Technical Evaluation," are designed to generate a technical evaluation of this issue for Unit 1 applicability. The licensee stated that a review would be done of potentially reportable deficiencies (SNs) from January 1988 through June 1990 for reportability and the implementation of corrective actions. At the conclusion of this reporting period, the actions associated with TUE Form 92-5393 and the corresponding Unit 1 technical evaluation had not been completed. The actions associated within these documents and the review of SNs is considered an inspector followup item (446/9216-03).

9.1 Summary of Findings

Within the areas examined, two weaknesses were identified with respect to the licensee's implementation of corrective actions. The first weakness involved the limited scope of the technical justification which was used to close IOER Followup Assessment Report WTB/89-06. The second weakness concerned insufficient detail in Reportability Evaluation Form SN-479 to support the licensee's conclusion that multiple deficiencies identified in both trains of the SSPS for Units 1 and 2 were not reportable pursuant to 10 CFR Part 50.55(e).

10. SUMMARY OF TRACKING ITEMS

The following items were opened in this inspection report:

- Violation 445/9216-01
- Violation 446/9216-02
- Inspector Followup Item 446/9216-03

The following items were closed in this inspection report:

- Open Item 446/8868-01
- SDAR CP-86-68
- SDAR CP-87-90
- SDAR CP-88-08
- SDAR CP-88-20
- SDAR CP-91-09

11. EXIT MEETING (30703)

An exit meeting was conducted on June 11, 1992, with the persons identified in paragraph 1 of this report. Licensee personnel confirmed that the review of SNs would be performed. The licensee did not identify as proprietary any of the materials provided to, or reviewed by, the inspectors during this inspection. During this meeting, the inspectors summarized the scope and findings of the inspection.