

APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-445/92-12 Unit 1 Operating License: NPF-87
50-446/92-12 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, Units 1 and 2

Inspection At: Glen Rose, Texas

Inspection Conducted: March 22 through May 2, 1992

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

L. A. Vandell

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

5/9/92

Date

Inspection Summary

Inspection Conducted March 22 through May 2, 1992 (Report 50-446/92-12)

Areas Inspected: Unannounced resident safety inspection of Unit 2 activities were performed, including plant status, followup on corrective actions for violations, followup on licensee actions on construction deficiencies, followup on NRC Bulletins, routine plant tours, preoperational test program implementation verification, preoperational test procedure review, preoperational test witnessing, and fuel receipt and storage.

Results: The closure packages associated with the regulatory items reviewed and closed during this reporting period were excellent. Housekeeping, access control, equipment protection, and temporary storage areas were generally good. Maintenance and prerequisite testing activities were generally well executed and controlled. However, the event associated with the battery exhaust fan (paragraph 7.5) was of concern because of the potential for

personnel injury. The preoperational test procedures reviewed were of high quality and the preoperational test performance was well controlled and performed with good coordination between the various work groups involved. Fuel receipt, handling, and storage activities were also well controlled. Two violations, nine significant deficiency analysis reports, and one NRC Bulletin were reviewed and closed.

Inspection Conducted March 22 through May 2, 1992 (Report 50-445/92-12)

Areas Inspected: No inspection activities were conducted on Unit 1.

Results: Not applicable.

DETAILS

1. PERSONS CONTACTED

TU ELECTRIC

H. D. Bruner, Senior Vice President
W. J. Cahill, Jr., Group Vice President
E. P. Gully, Engineering Management
S. W. Harrison, Manager, Unit 2 Project Overview
T. L. Heatherly, Licensing Engineer
T. A. Hope, Unit 2 Licensing Manager
J. D. Houchen, Deputy Unit 2 Project Manager
L. W. Hurst, Project Manager
S. S. Palmer, Stipulation Manager
D. Pendleton, Unit 2 Regulatory Services Manager
R. L. Spence, Unit 2 Quality Control Manager
R. D. Walker, Manager of Nuclear Licensing
K. 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)

Preoperational testing activities continued with the open vessel testing portions of the emergency core cooling system preoperational test completed. Preparations were being made to reassemble the reactor vessel internals. All of the Unit 2 reactor fuel (193 fuel assemblies) had been received, inspected, and stored. Construction completion activities remained essentially on schedule with startup activities (system flushing, prerequisite testing, and preoperational test procedure generation) slightly behind schedule.

3. FOLLOWUP ON CORRECTIVE ACTIONS FOR VIOLATIONS (92702)

3.1 (Closed) Violation 446/8604-03: Failure to install cable support grips

This violation involved the absence of cable support grips on cable tray risers. Specifically, cable support grips were not evident on cables for No. 18 through No. 0 conductor sizes installed in cable tray risers containing Tray Sections T23GECX91 and T24GEDG98 that were greater than 25 feet in height. In TU Electric's letter, TXX-6481, dated June 30, 1987, the licensee

concluded that the root cause of the deficiency was lack of a systematic program or guidance that directed the installation or sequence for the installation of cable grips.

In response to the violation, the licensee developed Electrical Specification CPES-E-2004 for Unit 2 which incorporated specific attributes for installation and verification of cable support grips. The licensee also developed construction/quality procedures, CQP-EL-205 and CQP-EL-206, which covered cable installation and external cable supports. These procedures provided additional guidance as to where cable supports are required and delineated specific installation instructions.

The inspectors reviewed the above procedures for adequacy. Based on these reviews, the inspectors concluded that the licensee had implemented effective corrective action to address the identified deficiency. Therefore, this violation is closed for Unit 2.

3.2 (Closed) Violation 446/8714-01: Missing shims and bands on steam generator holddown bolts

This violation involved the absence of shims and bands from the steam generator lower support ring. Specifically, the shims required to be installed under two steam generator holddown bolts were found missing, the banding required to be installed to hold the shims in place for the steam generator holddown bolt was missing from two bolts and was improperly placed for an additional six bolts, and the documentation of the shim material identity was not included in Nonconformance Report (NCR) M-2320. As previously documented in NRC Inspection Report 50-445/89-32; 50-446/89-32, this violation was reviewed and closed for Unit 1.

In response to the violation, the licensee issued Letter TXX-6939 dated December 7, 1987. As delineated in this letter, the licensee conducted a documentation review and determined that the subject shims were installed as required by NCR M-2320, Revision 3. However, the licensee concluded that, subsequent to installation, some of the shims and bands were inadvertently dislodged by personnel working in or transiting the area.

Relative to Unit 2 corrective actions, the inspectors determined that the licensee had issued TU Evaluation (TUE) Form 91-3185 dated December 13, 1991, and TUE Form 91-1906 dated January 28, 1992. Specifically, TUE Form 91-3185 directed inspection of each shim for missing banding. Any missing band was replaced in accordance with NCR M-2320. Additionally, TUE Form 91-1906 provided for the inspection of each shim for proper installation and any deficiencies were reworked in accordance with the applicable site procedure and quality assurance program.

With respect to the missing documentation including shim material identity, the licensee concluded that the shim material used to implement the

disposition of NCR M-2320 satisfied the requirement of paragraph NF-2121 and, therefore, material identity of the shim material was not an ASME Code requirement.

Based on the inspectors' reviews of the licensee's corrective actions, the inspectors concluded that the licensee had implemented effective corrective measures to address the identified violation. Therefore, this violation 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-85-50: "Cable Tray Tee Fittings"

This construction deficiency involved an improper welding process in the manufacturing of cable tray tee fittings. As previously documented in NRC Inspection Report 50-445/90-03; 50-446/90-03, this item was reviewed and closed for Unit 1.

During this reporting period, the inspectors reviewed the licensee's corrective action for this item as documented on various NCRs and design change authorizations (DCAs). Specifically, the inspectors reviewed DCA 41204, which defined the required weld connection for the tee fittings in question. Additionally, the inspectors reviewed TU Electric's letter, TXX-89291, dated May 26, 1989, which stated that affected cable tray tee fittings would be replaced prior to fuel load for Unit 2. The inspectors also reviewed a representative sample of associated work packages which indicated that the affected tee fittings had been replaced.

Based on these reviews, the inspectors concluded that the licensee had implemented appropriate actions to correct this construction deficiency for Unit 2. This item is considered closed for Unit 2.

4.2 (Closed) Construction Deficiency SDAR CP-86-03: "Sealing of Class 1E Devices"

This deficiency initially involved the apparent failure to install Class 1E limit switches in accordance with the manufacturer's requirements. Specifically, this deficiency concerned the questionable application of qualified conduit thread sealant and the torquing of conduit threads. Subsequently, this deficiency was expanded to include a potential design deficiency involving the failure to include the required electrical conduit seal assemblies (ECSAs) in the applicable controlling Electrical Specification 2323-ES-100. As previously documented in NRC Inspection Report 50-445/89-71; 50-446/89-71, this item was reviewed and closed for Unit 1.

During this reporting period, the inspectors reviewed the corresponding corrective actions for Unit 2. The inspectors reviewed the associated Corrective Action Request CAR-048, Revision 1, "Electrical Conductor Seal

Assemblies"; Specification CPES-E-2004, Revision 1, "Electrical Installation"; and the results of an engineering assessment performed under Procedure 2-EAP-028, "Electrical Device Walkdown and Verification." The inspectors also reviewed selected design change notices and construction work documents associated with the installation of Class 1E limit switches and ECSAs on Unit 2.

Based on these reviews it was concluded that appropriate provisions had been implemented to clarify component installation requirements for ECSAs, including postinstallation inspection criteria. This item is considered closed for Unit 2.

4.3 (Closed) Construction Deficiency SDAR CP-87-40: "Electrical Isolation between Class 1E and Non-Class 1E Equipment"

This deficiency involved the possibility of Class 1E radiation monitors being affected by faults induced in non-Class 1E radiation monitors as a result of faults in non-Class 1E 120 volt AC control circuits. This construction deficiency was reviewed and closed for Unit 1 in NRC Inspection Report 50-445/89-36; 50-446/89-36.

During this reporting period, the inspectors reviewed the Design Basis Document (DBD) DBD-EE-057, "Separation Criteria," and the associated work packages. The review indicated that the licensee had taken appropriate corrective actions in accordance with DBD-EE-057 and that the affected isolation devices had been replaced in accordance with DCA 93868.

Based on the above reviews, the inspectors concluded that the licensee had implemented appropriate corrective actions to address the identified deficiency. This item is considered closed for Unit 2.

4.4 (Closed) Construction Deficiency SDAR CP-87-45: "Reactor Coolant Pump (RCP) Motor Backup Circuitry"

This deficiency involved compliance with Regulatory Guide 1.63 in that primary and backup protective relays for the containment electrical penetrations serving the RCP motors shared common current transformers and wiring. As previously documented in NRC inspection Report 50-445/89-04; 50-446/89-04, this item was reviewed and closed for Unit 1.

During this reporting period, the inspectors reviewed DBD-EE-62, various DCAs, and the associated work packages which corrected the above deficiencies for Unit 2. The review of the work packages also indicated that work had been completed in accordance with DBD-EE-62 and associated DCA 93611 for Unit 2. Based on these reviews, the inspectors concluded that the licensee had implemented appropriate actions to address the identified deficiency. This item is considered closed for Unit 2.

4.5 (Closed) Construction Deficiency SDAR CP-87-54: "Class 1E MOV Motor Starters"

This deficiency involved the inappropriate use of thermal overloads and fused disconnects in motor-operated valve (MOV) starter circuits associated with Valves 2-HV-4075B and 2-HV-4075C. As previously documented in NRC Inspection Report 50-445/89-36; 50-446/89-36, this item was reviewed and closed for Unit 1.

During this reporting period, the inspectors reviewed the applicable DBD-EE-053, Revision 3; the associated DCAs; and Construction Work Document EQ-217568-01, which delineated the corrective actions taken by the licensee to address this deficiency for Unit 2. This review indicated that the licensee had instituted appropriate corrective measures to address the identified deficiency in that the affected MOVs had been modified to remove the thermal overload trip function. This construction deficiency is considered closed for Unit 2.

4.6 (Closed) Construction Deficiency SDAR CP-87-139: "Unqualified Terminal Blocks"

This deficiency involved terminal blocks which could allow unacceptable current leakage to ground during a loss-of-coolant accident or high energy line break condition. As previously documented in NRC Inspection Report 50-445/89-49; 50-446/89-49, this item was reviewed and closed for Unit 1.

During this reporting period, the inspectors reviewed selected DCAs and work packages associated with this issue. The review of these DCAs included the examination of the implementing work packages, which documented the replacement of the terminal blocks with splices. Additionally, the inspectors conducted field inspections of several junction boxes to verify the implementation of these modifications. No discrepancies were identified as a result of these inspections. Based on these reviews and field verification walkdowns, the inspectors concluded that the licensee had implemented appropriate corrective actions to address the identified deficiency. This item is considered closed for Unit 2.

4.7 (Closed) Construction Deficiency SDAR CP-88-07: "Reactor Coolant Pump Wiring"

This construction deficiency involved cable installations within the 6.9kV switchgear for the reactor coolant pumps which were not installed in accordance with Regulatory Guide 1.75. As previously documented in NRC Inspection Report 50-445/89-15; 50-446/89-15, this item was reviewed and closed for Unit 1.

During this reporting period, the inspectors reviewed DBD-EE-057, Revision 8, and determined that both isolation and separation criteria for Class 1E to non-Class 1E circuits, cables, and devices had been incorporated into this

document. The inspectors also reviewed several completed DCAs and their associated work packages which provided objective evidence that corrective actions, including the installation of isolation devices, had been completed. Based on the above reviews, the inspectors concluded that the licensee had taken appropriate corrective actions to address the construction deficiency for Unit 2. This item is considered closed for Unit 2.

4.8 (Closed) Construction Deficiency SDAR CP-88-27: "Westinghouse 7300 System Printed Circuit (PC) Cards"

This construction deficiency involved the 7300 system printed circuit cards which had been improperly downgraded from a quality Code Class A to a quality Code Class C. With respect to Unit 1, this item was reviewed and closed as previously documented in NRC Inspection Report 50-445/89-75; 50-446/89-75.

The inspectors reviewed the licensee's corrective and preventive actions performed for this deficiency relative to Unit 2, which included the replacement of the subject printed circuit cards. The inspectors also reviewed the associated work packages which showed the performance of this work for Unit 2. Based on the review of these documents, the inspectors determined that acceptable corrective and preventive actions had been implemented for this deficiency for Unit 2. This item is considered closed for Unit 2.

4.9 (Closed) Construction Deficiency SDAR CP-92-02: "Linear Indication in a 150# Flange"

This construction deficiency involved a linear indication in a 10-inch flange on a vendor supplied spool in the auxiliary feedwater system. The linear indication was subsequently ground out. The result was a bevel cavity with a minimum wall thickness of 0.306 inches in the area of the flange that would be welded to the 10-inch Schedule 40 pipe. The pipe had a manufacturer's minimum wall thickness requirement of 0.319 inches. Due to the deficiency, the licensee evaluated all locations where this size and type of flange was specified. This review concluded that one additional flange from the same heat lot was received and issued for installation in a nonsafety application. The licensee's evaluation of the flange defect concluded that the flaw would not grow and/or cause fracture under operating or testing conditions. An evaluation of the stress levels in the modified flange shape, assuming a uniform circumferential reduction in wall thickness, showed that flange yielding would not have resulted in a significant degradation of safety-related equipment. The licensee, therefore, determined that the deficiency was not reportable.

During this reporting period, the inspectors reviewed the licensee's corrective actions for Unit 2 which were summarized in TU Electric's letter, TXX-92036, dated February 27, 1992. As a result of these reviews, the inspectors determined that, even though the licensee's engineering evaluation

had established that the defect would not reduce the actual margin of safety, the licensee replaced the deficient flange because the actual wall thickness was less than the manufacturer's specifications.

Based on the inspectors' reviews of the documentation associated with this issue, it was determined that the licensee had properly addressed the reportability aspects of this item and that appropriate actions had been implemented to correct the identified deficiency. This construction deficiency is considered closed for Unit 2.

5. FOLLOWUP ON NRC BULLETINS (92701)

(Closed) NRC Bulletin 87-01: "Thinning of Pipe Walls in Nuclear Power Plants"

This bulletin was issued as a result of catastrophic failure of a main feedwater pipe that caused fatal injuries to four workers at Surry Nuclear Plant. As previously documented in the NRC Inspection Report 50-445/89-44; 50-446/89-44, this bulletin was reviewed and closed for Unit 1.

During this reporting period, the inspectors reviewed the licensee's response to this bulletin, which was contained in TU Electric letter, TXX-89836, dated December 15, 1989. The inspectors also reviewed Nuclear Overview Department Procedure NQA 3.09-8.47, "Corrosion Monitoring Program Ultrasonic Measurements," which was developed to provide procedural controls for the detection and monitoring of wall thinning due to erosion/corrosion. As a result of this review, it was determined that this procedure provided adequate controls to monitor the wall thinning of the piping for Unit 2 and that the licensee had effectively implemented the procedures to monitor the wall thinning due to erosion/corrosion.

Based on the above reviews, the inspectors concluded that the licensee had implemented a comprehensive approach to the potential wall thinning described in Bulletin 87-01. Therefore, this item is closed for Unit 2.

6. UNIT 2 TOURS (71302)

Routine tours of the Unit 2 facility were conducted in order to assess equipment conditions, security, housekeeping, and adherence to administrative and regulatory requirements.

Housekeeping, in general, was determined to be good. The level of area cleanliness varied according to the degree of construction activity and the number of personnel working in the area. Areas with little or no construction activity were cleared of excess material or had the material stored appropriately. The temporary storage of material, including storage methods, segregation of material, and labeling of storage areas, was observed to be satisfactory. Systems and piping that had been opened or removed were covered or sealed to maintain internal cleanliness. Instrumentation was adequately protected and transient combustibles were appropriately controlled. As a result of routine plant tours, it was determined that additional areas and

rooms were being placed under locked door control to limit personnel access. The level of access control was determined to be appropriate for the stage of completion of the assessed areas.

7. 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. No deficiencies were identified.

7.1 Instrument Channel Calibration

The inspectors observed the calibration of refueling water storage tank level Channel 2479B (Startup Work Package Z-10584). The calibration was performed in accordance with Procedure INC-7436, Revision 3. The procedure was verified to be the latest revision. All test equipment was properly calibrated and recorded on the work document. Three revisions to the work package were reviewed and verified to have been incorporated properly, with the proper review and authorization signatures. The technicians were knowledgeable regarding the procedure, and the calibration was performed in a professional manner. No deficiencies were observed.

7.2 Inverter Testing

The inspectors witnessed portions of the 100-hour load testing of safeguards Inverters CP2-ECIVEC-01, -2, -3, and -4 (Startup Work Package Z-9068). The inspectors verified that the load banks were connected to the inverters in accordance with the work document. The work document included dual verification signatures to ensure that the correct components were being tested. All of the associated test equipment was properly calibrated and recorded in the work document and the equipment was properly connected to the inverters in accordance with the work document instructions. Data was properly recorded at the appropriate intervals. No deficiencies were observed during the observed portions of testing, nor were any deficiencies noted in the documentation associated with the tests.

7.3 Motor Operated Valve Dynamic Testing

The inspectors witnessed the dynamic, maximum expected differential pressure testing associated with Valves 2-8808B and 2-8808D, the safety injection accumulators 2-02 and 2-04 injection valves (Work Orders C92-3779 and C92-3811). Additionally, the inspectors verified that the test equipment was properly connected to the sensing points and that the test equipment was properly calibrated. The work documents were properly authorized and signed. These tests were performed in conjunction with the performance of

preoperational test Procedure 2-CP-PT-57-03, "Safety Injection Accumulators." The test execution, and the coordination and communications between the valve testing personnel, the test engineer, and the operators were excellent. No deficiencies were identified during the observed testing activities.

7.4 Borg-Warner Check Valve Maintenance

The inspectors observed activities associated with modifications involving Borg-Warner swing check valves in the auxiliary feedwater system. These modifications were being implemented to enhance the seating characteristics of these valves and to provide additional assurance that the check valves close when required. Specifically, the inspectors observed the welding of a backstop to the valve bonnet for Valve 2AF-0051, which was performed in accordance with DCA 100619 under Startup Work Package Z-16195, the subsequent liquid penetrant inspections on this weld, and the valve reassembly. Additionally, the inspectors observed the liquid penetrant inspections on welds following the addition of backstops and valve disc counterweights to six different 4-inch swing check valves. These backstops and counterweights were added in accordance with DCA 94663 under Startup Work Packages Z-7406, -7407, -7414, -7416, -7418, and -7419. The inspectors determined that these activities, including the liquid penetrant inspections, were performed in accordance with the referenced work documents, and no deficiencies were identified.

7.5 Battery Exhaust Fan Ground

On April 28, 1992, while an electrician was removing the motor electrical connection box cover on battery exhaust fan Motor CP2VAFNID10 (Fan 10), a ground fault occurred causing extensive damage to the fan motor. The work was being performed under Construction Work Package ETP-1191, which included Construction Work Order C92-1704 and Startup Work Authorizations 82901 through 82904. Fan 10 was energized by the use of a temporary power supply installed under a temporary modification. The normal power supply to the fan had been deenergized and danger tagged in the deenergized condition. The intended task was to rework the vendor supplied motor conductor in the fan motor connection box. When the electrician removed the cover from the connection box, the leads apparently repositioned enough to contact the metal connection case, resulting in significant damage to the motor. The work was terminated at that point and licensee management was notified. Two TUE Forms were generated. TUE Form 91-509, Revision 0, which was the original TUE Form whose disposition resulted in the generation of the referenced work documents, was revised to resolve the hardware damage that occurred as a result of the ground fault. TUE Form 92-4963 was generated to address the administrative issue of how the work document was released to the field with the motor energized from temporary power.

Several corrective actions were taken immediately as a result of this event. The work documents involving the Unit 2 battery room exhaust fans were withdrawn from the field until the administrative issue of how they were released to the field was resolved. Construction electricians were

administered training on the temporary modification process and the meaning of temporary modification tags attached to equipment. The licensee also indicated that other construction craft personnel would also receive the training regarding temporary modifications. As stated by the licensee, training on temporary modifications was not previously included in the construction training program.

Inspector review of this event will continue and will be documented in a subsequent inspection report.

7.6 Alleged Radiation Exposure During Maintenance

The Fort Worth Star Telegram printed an article on March 25, 1992, that indicated that two workers were exposed to higher than normal levels of radiation during a maintenance activity when they mistakenly disassembled a valve on Unit 1. This wrong unit maintenance activity was discussed in NRC Inspection Report 50-445/92-08; 50-446/92-08. The newspaper article indicated that the workers told co-workers that they had been contaminated with 650 millirems of radiation.

The inspectors performed followup inspection activity of this issue, including interviews with radiation protection personnel and reviews of various radiation protection records and licensee documents. This review indicated that the four individuals most closely associated with the valve maintenance, two mechanics, one radiation protection technician, and one quality control inspector, did not receive a radiation exposure in excess of what would have been expected for the radiological conditions present in the work area. The highest indicated exposure for any of the four individuals, as indicated by pocket dosimeter, was 5 millirems. The pocket dosimeter readings were recorded at the radiological controlled area (RCA) access control station each time an individual exited the RCA. The thermoluminescent dosimeter for each individual was processed subsequent to the event, and the highest reading of the four was 36 millirems. It should be noted that this thermoluminescent dosimeter reading included radiation exposure dating back to January 1, 1992, and was not necessarily received at the time of this event. The personnel contamination log was reviewed and there were no reports of personnel contamination associated with this activity. There were also no reports regarding any individuals causing the portal radiation monitors at either the RCA exit point or the plant protected area exit to alarm, which would have indicated the transport of loose contamination.

Based on the discussions with personnel and reviews of the RCA entry and exit logs, the personnel contamination log, and associated work documents and radiation survey documentation regarding the event, the inspectors concluded that there was no verifiable evidence to indicate that any radiation exposure in excess of that described above occurred.

7.7 Summary of Findings

The various maintenance and testing activities observed were well controlled and performed with the exception of the event regarding the battery exhaust fan. The potential for personnel injury during this event was cause for concern. The radiation exposure alleged in the Fort Worth Star Telegram could not be substantiated through the review of radiation protection records nor personnel statements. No violations or deviations were identified.

8. PREOPERATIONAL TEST PROCEDURE REVIEW (70304, 70308, 70340, 70370)

During this reporting period, the inspectors reviewed selected preoperational test procedures to determine if they conformed to the administrative requirements for content and format and to ascertain if these procedures incorporated the requisite test criteria. The procedures were also reviewed to determine if the stated test objectives satisfied the appropriate Regulatory Guides, Final Safety Analysis Report, and Safety Evaluation Report commitments; that the prerequisite test conditions were delineated; that human factor considerations were incorporated; that the test methodology would produce the desired acceptance criteria; and that the appropriate qualitative and quantitative acceptance criteria were identified.

In particular, the following Unit 2 preoperational test procedures were reviewed:

- 2CP-PT-01-01A, Revision 1, "125 VDC System - Safety Related Class 1E Train A"
- 2CP-PT-01-01B, Revision 1, "125 VDC System - Safety Related Class 1E Train B"
- 2CP-PT-01-03A, Revision 0, "125 VDC System - Safety Related Class 1E"
- 2CP-PT-01-03B, Revision 0, "125 VDC System - Safety Related Class 1E"
- 2CP-PT-55-09, Revision 0, "RCS Equipment Supports Thermal Expansion Test"
- 2CP-PT-57-01, Revision 1 (preliminary copy), "Safety Injection Pump Performance and Flow Balance"
- 2CP-PT-57-02, Revision 1, "Centrifugal Charging Pump Performance and Flow Balance Test"
- 2CP-PT-57-03, Revision 2, "Safety Injection Accumulators"
- 2CP-PT-57-04, Revision 0, "Residual Heat Removal Emergency Core Cooling System Performance"

The inspectors noted that Procedure 2CP-PT-57-01 contained several steps that determined valve closing times. These steps; i.e., 7.9.14, 7.11.14, and 7.12.14, simulated a Phase A isolation signal and verified that the valves closed. The valve stroke time measurements were accomplished utilizing the valve actuating handswitch as the initiation signal for the valve closure. The valve stroke times did not take into account the signal processing and response times that would occur had the signal been generated from an actual plant condition requiring a Phase A isolation. The licensee stated that the response times for the instrumentation signal processing and actuation circuitry would be measured and summarized in subsequent preoperational tests. Review of the response time measurements and summaries will be performed during future inspections.

In general, the procedures reviewed were consistent in format and contained the elements required by the startup administrative procedures. The procedures were technically accurate, established prerequisite test conditions, and clearly stated the appropriate qualitative and quantitative acceptance criteria. The procedures contained the appropriate detail and the sequence of testing was such that the tests would produce the desired level of confidence regarding the ability of the equipment to meet its functional requirements. The procedures properly incorporated Final Safety Analysis Report commitments, and the appropriate Safety Evaluation Report sections were acceptably addressed. While the period between preoperational test procedure approval and the initiation of testing activities was limited, the additional resources which the licensee allocated to procedure development and the revised startup administrative procedures had resulted, to this point, in high quality test procedures.

In conjunction with the review of preoperational test Procedure 2CP-PT-55-09, the inspectors also evaluated the programmatic aspects of the testing and examination of safety-related piping supports and restraints. This evaluation included the review of the following procedures:

- 2PP-5.09, Revision 1, "Interface Between Backfit And Other Organizations For Pipe Stress Analysis And Pipe Support Design Activities"
- 2PP-5.23, Revision 0, "Piping Vibration Test Guidelines"
- 2PP-5.25, Revision 0, "Piping Thermal Growth Test Guideline"

As a result of these procedural reviews, it was concluded that the licensee had established appropriate controls for the testing of pipe supports and restraint systems. Additional reviews of the implementation aspects of this program will be performed during future inspections.

9. PREOPERATIONAL TEST WITNESSING (70312, 70315)

9.1 Safety Injection (SI) System Testing

The inspectors observed portions of the preoperational testing performed on the SI system which were conducted in accordance with Unit 2 startup test Procedure 2CP-PT-57-01, "Safety Injection Pump Performance and Flow Balance," Revision 2. The inspectors confirmed that the appropriate prerequisites had been completed and that adequate communications had been established. The test equipment was verified to be properly calibrated. The test was well controlled by the test engineer with good coordination between the control room and the auxiliary operators in the field. Following the licensee's determination of the appropriate positions for the cold leg injection throttle valves, valve stem locking devices were installed to prevent any subsequent position change. No deficiencies were identified by the inspector as a result of these observations.

9.2 Centrifugal Charging Pump (CCP)

The inspectors witnessed selected portions of the preoperational testing conducted on the CCPs which were performed in accordance with startup test Procedure 2CP-PT-57-02, Revision 1, "Centrifugal Charging Pump Performance and Flow Balance." Specifically, the inspectors observed the portions of the preoperational test associated with the CCPs 2-01 and 2-02 cold leg injection line flow balancing.

Prior to the initiation of these preoperational testing activities, the inspectors confirmed that the appropriate prerequisites had been accomplished; that communications had been established; and that the installed test instrumentation was properly calibrated.

No deficiencies were identified as a result of these test observations, and it was determined that the required flow rates for CCP discharge flow control Valves 2SI-8810A, -B, -C, and -D were properly established and that the required valve stem locking devices were appropriately installed.

9.3 SI Accumulator Testing

The inspectors observed portions of the preoperational testing performed on the SI accumulators which was performed in accordance with startup test Procedure 2CP-PT-57-03, "Safety Injection Accumulators." Revision 2. Specifically, the inspectors observed the filling, venting, and pressurization of SI Accumulator 2-04 using permanently installed plant equipment. Additionally, the inspectors witnessed the testing of Accumulators 2-02 and 2-04 injection valves, 2-8808B and -D, respectively, under maximum differential pressure conditions, and verified that the appropriate prerequisites had been completed prior to testing. Test equipment was verified to be properly calibrated. No deficiencies were identified, and the testing was well executed with good coordination and communications between the control room and the operators in the field.

9.4 Summary of Findings

No deficiencies were observed during the performance of testing activities. The communications and coordination between the test engineers, operators in the control room, operators in the field, and the MOV group testing personnel were excellent. The tests were performed in accordance with the applicable procedures, prerequisites were verified complete, and appropriate test instrumentation was used.

10. FUEL RECEIPT AND STORAGE (60501)

The inspectors observed portions of new fuel receipt, storage, and inspection activities associated with two separate shipments of fuel for the Unit 2 reactor. Specifically, the inspectors observed the opening of several shipping containers, the performance of the initial contamination surveys, fuel movement to the inspection stand, fuel inspection by quality control inspectors, and the movement of the fuel to the new fuel storage racks.

The inspectors also reviewed the shipping documents associated with the fuel shipments to verify that the container seal numbers, fuel assembly identification numbers, control rod assembly numbers, and shipping container numbers matched the numbers on the shipping documents. The fuel transfer forms accurately reflected the final storage location in the new fuel storage rack.

The observed activities were performed in accordance with Procedures RFO-104, "Receipt and Shipment of New Fuel," and RFO-210, "Receipt, Inspection and Storage of New Fuel and Insert Core Components." No deficiencies were observed and all activities were well coordinated and executed. All Unit 2 fuel had arrived onsite and was inspected. No further inspection activity is planned in this area.

11. SUMMARY OF TRACKING ITEMS

The following items were closed in this inspection report:

- Violation 446/8604-03
- Violation 446/8714-01
- SDAR CP-85-50
- SDAR CP-86-03
- SDAR CP-87-40
- SDAR CP-87-45
- SDAR CP-87-54
- SDAR CP-87-139
- SDAR CP-88-07
- SDAR CP-88-27
- SDAR CP-92-02
- NRC Bulletin 87-01

12. EXIT MEETING (30703)

An exit meeting was conducted on April 30, 1992, with the persons identified in paragraph 1 of this report. 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.