

APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV

NRC Inspection Report: 50-445/92-48  
50-446/92-48

Operating License: NPF-87

Construction Permit: CPPR-127

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

Facility Name: Comanche Peak Steam Electric Station (CPSES)

Inspection At: CPSES, Glen Rose, Texas

Inspection Conducted: October 19 through December 15, 1992

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12/31/92  
Date

Inspection Summary

Areas Inspected (Unit 1): No inspection of Unit 1 activities was performed.

Results:

- Not applicable.

Areas Inspected (Unit 2): Routine, announced inspection of lessons learned program, preoperational test program procedures, implementation, results, evaluations, document control, plant configuration control, and equipment preventive maintenance. Also, the licensee's actions taken in response to an IE Bulletin were reviewed.

Results:

- The licensee's lessons-learned program was formalized by procedure and utilized a computerized-database. The program and its implementation were considered programmatic strengths (section 2).
- From a sampling of components controlled by the preoperational test program, it was determined that the licensee had suitable administrative controls and procedures implemented to maintain drawing, document, and plant configuration control and to accomplish necessary preventive maintenance activities (section 4).
- The licensee's results evaluation for Preoperational Test Procedure 2CP-PT-55-02, "Hot Functional Test," satisfied the administrative requirements. Identified deficiencies were suitably dispositioned, the test acceptance criterion was satisfied, no retests were necessary, and the number of test procedure changes required was reasonable (section 5).
- The licensee's results evaluation for Preoperational Test Procedure 2CP-PT-64-11, "AMSAC Operational Test," was completed in accordance with the administrative requirements. Test acceptance criteria were satisfied, no retests were necessary, and deficiencies were suitably dispositioned (section 6).
- Preoperational Test Procedure 2CP-PT-64-05, "Safeguards Test Cabinets Blocking Circuits Pre-Operational Test," was acceptable. The procedure was responsive to licensee commitments, administrative controls, and regulatory requirements for engineering safety features testing. It contained logical and easy to follow steps with specific precautions, notes, and acceptance criteria (section 7).
- The licensee's results evaluations for Preoperational Test Procedures 2CP-PT-57-01, "Safety Injection Pump (SIP) Performance and Flow Balance"; 2CP-PT-57-04, "Residual Heat Removal (RHR) Emergency Core Cooling System (ECCS) Performance"; and 2CP-PT-57-06, "Hot Functional ECCS Check Valve Operability"; were complete. Identified test deficiencies were suitably dispositioned and appropriate retests were performed. The number of licensee-identified procedural errors, which were not identified prior to test performance, indicated that the quality of the licensee's preoperational test procedure review process was poor (section 8).

- The licensee's results evaluations for Preoperational Test Procedures for the dc power system were complete. Several deficiencies identified during the licensee's test results review appeared to have been caused by a lack of attention to detail during the preoperational test procedure review and approval process (section 9).
- The licensee's results evaluation for Preoperational Test Procedure 2CP-PT-02-08, "345kV Startup Transformer and 6.9kV Class Switchgear," was of excellent quality and supported the determination that the testing activities were successful (section 10.1).
- The licensee's results evaluation for Preoperational Test Procedure 2CP-PT-02-10, "480 Volt Class 1E Switchgear and Motor Control Centers," was of excellent quality and supported the determination that the testing activities were successful and that they fulfilled the test objectives (section 10.2).
- The licensee's results evaluation for Preoperational Test Procedure 2CP-PT-02-13, "6.9 kV and 480 Volt Class 1E Switchgear Undervoltage Relay Functional Test," was detailed, thorough, met all acceptance criteria, and appeared to have been well performed (section 10.3).

Summary of Inspection Findings:

- The licensee's response to IE Bulletin 79-14, "Seismic Analysis for As-Built Safety-Related Piping Systems," was closed (section 11).

Attachments:

- Attachment 1 - Persons Contacted and Exit Meeting
- Attachment 2 - Lessons-Learned Action Items Reviewed

## DETAILS

### 1 PLANT STATUS

During this inspection period, the licensee continued to develop preoperational test procedures, prepared results evaluations, and conducted various testing including the integrated test sequence (ITS).

### 2 LESSONS LEARNED PROGRAM

In this area of the inspection, the inspectors examined the licensee's provisions for identifying and resolving lessons-learned concerns. Some of these concerns for Unit 2 activities may have originated in the Unit 1 preoperational or startup programs.

#### 2.1 Discussion of Program

The licensee formalized this program, which is a licensee initiated program, in Project Procedure 2PP-9.18, Revision 0, "Lessons-learned Program," dated October 15, 1990. The program was changed on August 6, 1991, with Procedure Change Notice No. 1. The program provided for the capturing, tracking, and documenting of resolutions for items such as an issue, enhancement, or recommendation for which no formal tracking mechanism existed. The procedure stated that the program was not to be used to track items that required processing in accordance with Project Procedure 2PP-3.05, (the non-conformance) or TU Nuclear Licensing (TNL) 4.09 (the commitment tracking procedure).

This program required all Unit 2 managers to identify on a specified form any emergent "Lessons-learned Action Items" to the "Lessons-learned Coordinator" and to resolve action items within their area of responsibility. The form was to provide a brief description of the item, a basis for the concern, identify the primary organization responsible for closure, and provide the approval by the appropriate Unit 2 manager prior to submittal to the "Lessons-learned Coordinator."

The coordinator assigned action items unique identification numbers, and maintained a log of action items, as well as, maintained the closure documentation on action items. After an action item was numbered, and approved by the coordinator, it was assigned to a primary organization for closure. The coordinator was provided a closure letter from Unit 2 managers that identified the actions taken to resolve the action items. These records, forms, log, and closure memoranda, were not considered formal quality records.

#### 2.2 Discussion on Program Implementation

At the time of this inspection, there were more than 500 action items which have been identified since the inception of the program. About two-thirds of



these items were the result of a "brain storming" effort at the beginning of the program about two years ago. Twenty-four action items were open as of this inspection. Two-thirds of the action items were in the disciplines of startup, mechanical, or materials management (purchasing). There were certain items, namely major enhancements not within the scope of the program, such as the licensee's operational readiness assessment team effort. The licensee felt that the "Triad," a procedure development system, and "Team Plus," an interface improvement program, were notable successes from the "Lessons-learned Program."

In review of the database, the inspectors found "Citizen Association for Sound Energy" concerns were handled through TU Nuclear Licensing (TNL) Procedure 4.09, "Commitment Tracking System." The inspectors found that some of the action items within the discipline of operations were assigned to the manager of Performance and Test, who is responsible for the initial startup test program.

The inspectors reviewed a sample of 30 actions items. This review addressed such items as the accuracy of problem definition, the potential for generic impact, completeness of documentation, and followup on issues to measure effectiveness of actions. These action items reviewed are listed in Attachment 2.

The following observations were provided to the licensee for further consideration as may be appropriate:

The inspectors found that the input forms were not retained by the coordinator after the data from the forms was fed into the database. In addition, the identity of the author of a concern was not retained. In general, the inspectors found there was no followup on action items to measure the effectiveness of actions.

The inspectors observed that in closure memoranda the generic impact of concerns was not addressed.

In a few cases, there was not a memorandum from a Unit manager on file for closure. The licensee's representative stated they would issue closure memoranda.

The inspectors observed that the log identified closure of action item W064 with a quality assurance memorandum; whereas, it should have been closed with a Unit manager's memorandum.

Action item W036 was closed, but the inspectors determined that the actions ultimately taken were different than described in the original action item.

Quality Assurance performed oversight of the lessons-learned program through a surveillance QAS-91-054, during May 13-16, 1991. Three conditions requiring corrective action were identified in this surveillance. The surveillance

findings are closed and corrective actions have been taken for the conditions identified. The conclusions of the surveillance were that the program had proper controls in place and that, in general, the program was being properly implemented.

### 2.3 Conclusions

The licensee established a lessons-learned program, which was a licensee initiated program. Although some observations were identified with certain lessons-learned action items, the program appeared to be a programmatic strength. A procedure documented the program and a computerized-database contained information such as the action items' description, status, and resolution. The licensee's implementation of this program was also considered to be a programmatic strength.

## 3 OVERALL PREOPERATIONAL TEST PROGRAM REVIEW REQUIREMENTS (70301)

In this area of the inspection, the inspectors ascertained whether the licensee's administrative controls over preoperational testing were in accordance with the Final Safety Analysis Report (FSAR) commitments and regulatory requirements. Throughout the inspection period, the inspectors periodically reviewed the implementation of the administrative controls exercised over the preoperational test program. The inspectors observed that the licensee conducted various meetings to schedule and coordinate preoperational test activities.

## 4 PREOPERATIONAL TEST PROGRAM IMPLEMENTATION (70302)

In this area of the inspection, the inspectors examined document control, plant configuration control, and preventive maintenance (PM) for plant equipment during the preoperational test phase of plant startup. The purpose of this part of the inspection was to verify that the administrative controls implemented by the licensee for these activities complied with regulations and industry standards and other commitments made by the licensee. These activities were inspected in conjunction with review of the test results evaluation packages discussed below.

### 4.1 Discussion

For each of the preoperational test results evaluation packages reviewed, the inspectors verified that changes resulting from startup deficiency reports (SDRs) and TU Evaluations (TUEs) were made to the associated procedures and design documents. No discrepancies were identified. During performance of Preoperational Test Procedure 2CP-PT-57-01, it was determined that safety injection pump (SIP) 2-01 had slightly exceeded the maximum allowable total dynamic head (TDH). This condition was dispositioned use-as-is in TUE 4769, Revision 0, "SIP 2-01 TDH Exceeds Maximum Allowable." The basis for a use-as-is determination was that the total injected flow would be within accepted limits. The inspectors verified that the revised pump performance data would be incorporated into the inservice testing program. For each of the

preoperational test results evaluation packages, the inspectors selected three drawings referenced in the package and verified that the current configurations were suitably tested. The following drawings were selected for verification:

- Drawing M2-0260, Revision CP-6, "Flow Diagram Residual Heat Removal System";
- Drawing M2-2260, Revision CP-2, "Instrumentation and Control Diagram Residual Heat Removal System Channel 8701/8702";
- Drawing E2-0031, Revision CP-2, "6.9 kV Switchgear Bus 2EA1 Residual Heat Removal PP 21 Tag TCX-RHAPRH-01 BKR 2APRH1 Schematic Diagram";
- Drawing M2-0261, Revision CP-7, "Flow Diagram Safety Injection System Sheet 1 of 6";
- Drawing M2-0250, Revision CP-5, "Flow Diagram Reactor Coolant System";
- Drawing E2-0031, Revision CP-3, "6.9 kV Switchgear Bus 2EA1 Safety Injection Pump 21 Tag TCX-SIAPSI-01 BKR 2APSI1 Schematic Diagram";
- Drawing E2-0062, Revision CP-2, "Motor Operated Valve 2-8807A Suction Header Cross Connection";
- Drawing M2-2261, Revision CP-2, "Instrumentation & Control Diagram Safety Injection System Channel 0930/0933"; and
- Drawing M2-0261, Revision CP-7, "Flow Diagram Safety Injection System Sheet 1 of 6."

The inspectors reviewed Startup Administrative Procedure CP-SAP-25, Revision 6, "Warehouse and Unit 2 PM Program," and found that it suitably addressed PM for components which had not been turned over to operations. Interviews with the PM coordinator and engineering personnel revealed that new components were being evaluated for PM requirements when they were received. The inspectors selected three components from the preoperational test results evaluation packages and reviewed PM reports to verify that they had received the appropriated PMs for the past three years. The components selected were SIPs 2-01 and 02 and RHR Pump 2-01. The following reports were reviewed:

- Report NMMWH005.R01, "Plant Reliability - An Integrated System for Management (PR-ISM) Work Order History Listing as of 1992-05-29," sorted for SIP 2-01 and -02, dated October 27, 1992; and
- Report NMMWH005.R01, PR-ISM Work Order History Listing - as of 1992-05-29," sorted for RHR Pump 2-01, dated October 29, 1992.

It appeared that suitable PM activities had been performed for the selected components.

The inspectors reviewed Report PMDELQ, "Delinquent PM Report PR-ISM Report," dated October 28, 1992. The inspectors discussed the 21 delinquent PMs on the report with the PM coordinator and determined that each had been appropriately evaluated and dispositioned.

The inspectors accompanied craftsmen during performance of four PM activities (two involving warehouse components and two involving installed components). They were covered by the following work orders (WOs):

- WO 3-92-327102-01, "Rotate Shaft on Motor TSN-358375";
- WO 3-92-326674-02, "Rotate Shaft on Motor TSN-351113";
- WO 3-92-303992-02, "Sample Oil on EDG 2-02 Starting Air Compressor 2-04 Motor CP2-MECAED-04M"; and
- WO 3-92-320141-01, "Inspect Unit 2 Safeguard 790 Hallway Equipment Access Hoist 2-45."

The inspectors found that the PM activities were properly performed with suitable procedures.

#### 4.2 Conclusions

For the preoperational test procedure results evaluations reviewed, appropriate changes had been made in procedures and design documents affected by SDRs and TUEs. The preoperational testing performed was appropriate for the current plant configuration as reflected by selected current drawings referenced in the preoperational test procedure packages. Suitable administrative controls and procedures had been implemented to accomplish PM activities for components controlled by the preoperational test program.

#### 5 INTEGRATED HOT FUNCTIONAL TEST - PREOPERATIONAL TEST RESULTS EVALUATION (70324)

In this area of the inspection, the inspectors evaluated the results evaluation of the integrated hot functional test controlling procedure. The inspectors reviewed the results evaluation package to assure that the test data was within previously established acceptance criteria, or that deviations were properly dispositioned; evaluated the adequacy of administrative practices in maintaining proper test discipline during test execution, test alteration, and test recording; and verified that the licensee followed its procedures for review, evaluation, and acceptance of test results.



## 5.1 Discussion

The inspectors reviewed the results evaluation package for Preoperational Test Procedure 2CP-PT-55-02, Revision 1, "Hot Functional Test," which was approved by the startup manager on November 11, 1992. The field testing had started on July 12, 1992, and had been completed on September 4, 1992. The procedure coordinated a substantial number of independent tests, which had their own acceptance criteria, that were performed during the hot functional test period. The objective of this specific test was to achieve greater than one million cycles on the reactor vessel internals for subsequent vibration inspections. This was achieved by operating the reactor coolant system (RCS) at full-flow conditions for a minimum of 240 hours with at least 120 hours greater than 515°F RCS temperature. The logs indicated that these goals were exceeded.

SDR 2968 and TUE 92-5857 were issued to address administrative and log entry deficiencies occurring during performance of the test. Both were suitably dispositioned and neither affected acceptance criteria. Twelve non-intent test procedure changes (TPCs) had been entered in the test package. Some of these TPCs appeared to be unavoidable because of the necessity to reschedule certain test sequencing due to plant conditions. No retests were necessary. Considering the duration and complexity of the testing, the inspectors did not consider this number of TPCs unusual. It appeared that the licensee complied with all administrative requirements for compilation and approval of the results evaluation package. The inspectors identified no existing errors in the results evaluation package.

## 5.2 Conclusions

Administrative requirements for compilation and approval of the test results evaluation package for Preoperational Test Procedure 2CP-PT-55-02, "Hot Functional Test," were satisfied. Identified deficiencies involving compliance with administrative requirements were suitably dispositioned. The acceptance criterion was satisfied and no retests were necessary. The number of TPCs required was reasonable.

## 6 REACTOR PROTECTION SYSTEM - PREOPERATIONAL TEST RESULTS EVALUATION (70325)

In this area of the inspection, the inspectors evaluated the results evaluation of an anticipated transient without scram (ATWS) mitigation system actuation circuitry (AMSAC) operational test. This test constituted a portion of the testing required for the reactor protection system. The inspectors reviewed the results evaluation package to assure that the test data was within previously established acceptance criteria, or that deviations were properly dispositioned; evaluated the adequacy of administrative practices in maintaining proper test discipline during test execution, test alteration, and test recording; and verified that the licensee followed its procedures for review, evaluation, and acceptance of test results.

## 6.1 Discussion

The inspectors reviewed the licensee's results evaluation package for Preoperational Test Procedure 2CP-PT-64-11, Revision 0, "AMSAC Operational Test." The test was performed during the period of September 2-5, 1992, and the results evaluation package was approved by the startup manager on November 17, 1992. It appeared that the test results evaluation had been completed in accordance with administrative requirements. The inspectors identified no errors in the test results evaluation package.

The licensee issued two SDRs, which had been suitably dispositioned. SDR 2916 addressed two procedural steps being out of sequence. A TPC was issued to change the order of the steps. SDR 3173 addressed administrative deficiencies in conduct of the test discovered during post-test results reviews. The inspectors observed that the Unit 1/Unit 2 differences section of the Test Review Report was not helpful because the startup test engineer stated that he did not know if there were any differences. The licensee responded that this was a courtesy section for operations and not an integral part of the design configuration control program. The inspectors noted that the retest block had been signed on SDR 3173 even though no retests had been performed. The inspectors questioned whether this block should have been marked not applicable. The licensee responded that this comment would be considered for further program direction.

## 6.2 Conclusions

The results evaluation package for Preoperational Test Procedure 2CP-PT-64-11, "AMSAC Operational Test," had been completed in accordance with licensee administrative requirements. Acceptance criteria were satisfied and no retests were necessary. Deficiencies had been suitably dispositioned. The inspectors identified no errors in the results evaluation package. Minor comments were forwarded to the licensee for consideration.

## 7 ENGINEERED SAFETY FEATURES ACTUATION SYSTEM TEST - PREOPERATIONAL TEST PROCEDURE REVIEW (70334)

In this area of the inspection, the inspectors evaluated a preoperational test procedure for the engineered safety features test. In particular, the inspectors reviewed the procedure for technical and administrative adequacy and consistency with regulatory requirements, guidance, and licensee commitments. The review was primarily performed using the guidance in Inspection Procedures 70300 and 70334B, and the procedure was specifically compared to the licensee's commitments in FSAR Chapters 7.1, 7.3, and 14.2 and Regulatory Guide 1.68 discussions.

### 7.1 Discussion

Preoperational Test Procedure 2CP-PT-64-05, "Safeguards Test Cabinets Blocking Circuits Pre-Operational Test," was developed to demonstrate that the blocking of A train and B train circuits of the safeguards test cabinets and the

turbine trip test cabinets function as designed. Specific procedure objectives included the verification of indications, interlocks, switch operations, and relay actions. The detailed test section of the procedure contained 51 subsections. Prerequisites applicable to specific sections were clearly identified as to which sections they applied to in both the prerequisites section of the procedure and the detailed test sections of the procedure.

## 7.2 Conclusions

Preoperational Test Procedure 2CP-PT-64-05, "Safeguards Test Cabinets Blocking Circuits Pre-Operational Test," satisfied licensee commitments and regulatory requirements for engineering safety features tests. The inspectors identified no deficiencies. The procedure's steps were in a logical order and easy to follow. The procedure provided clear acceptance criteria. The precautions and notes were specific and clear. The test received the appropriate reviews and approvals.

## 8 ENGINEERED SAFETY FEATURES ACTUATION SYSTEM TEST - PREOPERATIONAL TEST RESULTS EVALUATION (70400)

In this area of the inspection, the inspectors surveyed the results evaluation packages for several preoperational tests associated with the engineered safety features (ESF) actuation system preoperational testing. The inspectors reviewed the results evaluation packages to assure that the test data was within previously established acceptance criteria, or that deviations were properly dispositioned; evaluated the adequacy of administrative practices in maintaining proper test discipline during test execution, test alteration, and test record keeping; and verified that the licensee followed its procedures for review, evaluation, and acceptance of test results.

### 8.1 Discussion

Pursuant to the above objectives, the inspectors reviewed the licensee's results evaluation packages for the following preoperational tests:

- Preoperational Test Procedure 2CP-PT-57-01, "Safety Injection Pump (SIP) Performance and Flow Balance," approved October 5, 1992;
- Preoperational Test Procedure 2CP-PT-57-04, "Residual Heat Removal (RHR) Emergency Core Cooling System (ECCS) Performance," approved October 12, 1992; and
- Preoperational Test Procedure 2CP-PT-57-06, "Hot Functional ECCS Check Valve Operability," approved October 5, 1992.

The test results evaluations appeared complete for all three packages. All test deficiencies had been suitably dispositioned by issuance of SDRs or TUEs in accordance with Startup Administrative Procedure CP-SAP-16,

"Deficiency and Nonconformance Reporting." Appropriate retests had been specified and completed. However, a substantial number of SDRs and TUEs were issued as follows:

- 13 SDRs and 5 TUEs for Preoperational Test Procedure 2CP-PT-57-01;
- 5 SDRs and 2 TUEs for Preoperational Test Procedure 2CP-PT-57-04; and
- 7 SDRs and 1 TUE for Preoperational Test Procedure 2CP-PT-57-06.

In addition, there were numerous TPCs associated with these tests. Specifically,

- 17 TPCs for Preoperational Test Procedure 2CP-PT-57-01;
- 7 TPCs for Preoperational Test Procedure 2CP-PT-57-04; and
- 3 TPCs for Preoperational Test Procedure 2CP-PT-57-06.

Typically, each TPC involved numerous changes. For each preoperational test, one SDR dealt with minor violations of Startup Administrative Procedure CP-SAP-07B, "Preoperational Testing." None of these errors appeared to invalidate test results. Considering the complexity of the preoperational tests performed, the inspectors did not consider the number of SDRs, TUEs, and TPCs issued inordinately high. However, the quality of the procedure review process was poor in that several of the procedural errors should have been obvious and corrected prior to test commencement.

## 8.2 Conclusions

Test results evaluation packages for Preoperational Test Procedures 2CP-PT-57-01, "Safety Injection Pump (SIP) Performance and Flow Balance"; 2CP-PT-57-04, "Residual Heat Removal (RHR) Emergency Core Cooling System (ECCS) Performance"; and 2CP-PT-57-06, "Hot Functional ECCS Check Valve Operability"; were complete. Identified test deficiencies had been suitably dispositioned. Appropriate retests had been performed. Because it appeared that some of the procedural errors should have been identified prior to test performance, the quality of the licensee's preoperational test procedure review process was poor.

## 9 DC POWER SYSTEM TEST - PREOPERATIONAL TEST RESULTS EVALUATION (70400)

In this area of the inspection, the inspectors reviewed the completed preoperational tests for the Unit 2 DC power system. Four tests were examined. A and B train batteries (four batteries) and their associated chargers and switchboards were tested. The inspectors reviewed the tests to verify that the tests had met all testing acceptance criteria, that all deviations were properly resolved, that the licensee's results evaluation had been properly conducted, that the test had been conducted in accordance with the approved administrative procedures, and that any required retests had been performed and evaluated.



## 9.1 Discussion

The purpose of the tests was to verify that the four Class 1E batteries and their associated chargers would meet their design and performance requirements under various scenarios for normal and emergency operations.

The four completed tests reviewed were:

- 2CP-PT-01-01A, Revision 1, "125 VDC System Safety-Related Class 1E Train A" (Battery BT2ED1 and chargers BC2ED1-1 and BC2ED1-2);
- 2CP-PT-01-01B, Revision 1, "125 VDC System Safety-Related Class 1E Train B" (Battery BT2ED2 and chargers BC2ED2-1 and BC2ED2-2);
- 2CP-PT-01-03A, Revision 1, "125 Volt D.C. System Safety-Related Class 1E" (Battery BT2ED3 and chargers BD2ED3-1 and BC2ED3-2); and
- 2CP-PT-01-03B, Revision 1, "125 Volt D.C. System Safety Related Class 1E" (Battery BT2ED4 and chargers BC2ED4-1 and BC2ED4-2).

The test results evaluation packages contained the completed preoperational test procedures, preoperational test review and comment forms, chronological logs, test review checklists, TPCs, TUEs, SDRs, test review reports, and attachments.

The test results evaluations appeared complete and all acceptance criteria were met. All testing discrepancies were identified and appropriately dispositioned by issuance of either SDR's or TUE's. While the number of SDR's and TUE's did not seem excessive and had no adverse effect on the tests, the content appeared to indicate weakness in the initial test procedure review process. The licensee's results evaluations appeared to be complete and detailed. The chronological logs were complete and well annotated.

## 9.2 Conclusions

The results evaluations packages for Preoperational Test Procedures of dc power systems were complete and all acceptance criteria were met. Several deficiencies identified during the licensee's test results review appeared to have been caused by a lack of attention to detail during the preoperational test procedure review and approval process.

## 10 EMERGENCY-STANDBY POWER SUPPLY SYSTEM TEST - PREOPERATIONAL TEST RESULTS EVALUATION (70400)

In this area of the inspection, the inspectors evaluated the results evaluations of two emergency-standby power supply system tests. The inspectors reviewed the results evaluation packages to assure that the test data were within previously established acceptance criteria, or that deviations were properly dispositioned; evaluated the adequacy of

administrative practices in maintaining proper test discipline during test execution, test alteration, and test recording; and verified that the licensee followed its procedures for review, evaluation, and acceptance of test results.

## 10.1 345kV Startup Transformer and 6.9kV Class Switchgear

### 10.1.1 Discussion

Preoperational Test Procedure 2CP-PT-02-08, "345kV Startup Transformer and 6.9kV Class Switchgear," was developed to test breaker control scheme logic for the preferred supply, alternate supply, and bus-tie breakers for 6.9kV buses 2EA1 and 2EA2.

There was one procedure change made to the test. The change was made before testing commenced. The change, which was appropriately approved, did not alter the intent of the procedure's objectives, and was acceptable. The change was suitably indicated in the official test copy of the procedure by use of vertical bars. Individual pages of the procedure and its attachments were appropriately marked. The technical evaluations and startup work authorizations that were issued in conjunction with the testing activities were appropriate. All procedural steps that required signing or initialing and dating were complete. Certain test data that was reviewed was found to conform to the acceptance criteria. Personnel, who participated in the test, appropriately signed the signature sheet.

The results evaluation package was of excellent quality and supported the determination that the testing activities were successful in that they fulfilled the test objectives. There were no discrepancies identified during the inspector's review of the results evaluation package; moreover, the licensee's evaluation supported the inspector's opinion that the testing activities had proceeded very smoothly with few complications.

### 10.1.2 Conclusions

The licensee's results evaluation package for Preoperational Test Procedure 2CP-PT-02-08, "345kV Startup Transformer and 6.9kV Class Switchgear," was of excellent quality and supported the determination that the testing activities were successful in that they fulfilled the test objectives and in that the testing activities had proceeded very smoothly with few complications.

## 10.2 480 Volt Class 1E Switchgear and Motor Control Centers

### 10.2.1 Discussion

Preoperational Test Procedure 2CP-PT-02-10, Revision 1, "480 Volt Class 1E Switchgear and Motor Control Centers," was developed to demonstrate functionality and independence of various 480 volt Class 1E electrical equipment. There were eight procedure changes made to the test. Two changes, which altered the intent of the procedure, were appropriately approved and

were acceptable. The other changes, which were appropriately approved, did not alter the intent of the procedure's objectives, and were acceptable. The charges were suitably indicated in the official test copy of the procedure by use of vertical bars. Individual pages of the procedure and its attachments were appropriately marked. The TUEs and startup work authorizations that were issued in conjunction with the testing activities were appropriate. All procedural steps that required signing or initialing and dating were complete. Certain test data that was reviewed by the inspectors was found to conform to the acceptance criteria. Personnel, who participated in the test, signed the signature sheet.

The results evaluation package was of excellent quality and supported the determination that the testing activities were successful in that they fulfilled the test objectives. There were no discrepancies identified during the inspector's review of the results evaluation package; moreover, the licensee's evaluation supported the inspector's opinion that the testing activities had proceeded very smoothly with few complications.

#### 10.2.2 Conclusions

The licensee's results evaluation for Preoperational Test Procedure 2CP-PT-02-10, "480 Volt Class 1E Switchgear and Motor Control Centers," was of excellent quality and supported the determination that the testing activities were successful in that they fulfilled the test objectives and in that the testing activities had proceeded very smoothly with few complications.

### 10.3 6.9 kV and 480 Volt Class 1E Switchgear Undervoltage Relay Functional Test

#### 10.3.1 Discussion

The inspectors reviewed the licensee's results evaluation package for Preoperational Test Procedure 2CP-PT-02-13, Revision 0, "6.9 kV and 480 Volt Class 1E Switchgear Undervoltage Relay Functional Test." The purpose of this preoperational test procedure was to test functioning of the undervoltage protection control circuitry and response times of engineered safety features for various undervoltage conditions identified in the technical requirements manual. The test result evaluation package contained the completed preoperational test procedure, preoperational test review and comment forms, chronological log, test review checklist, test review report, attachments, and two retests. There were also six SDRs and five TPCs. Of the five TPCs, four were non-intent changes and one was an intent change and was reviewed and approved in Joint Test Group meeting number 92-85. Of the SDRs, three were generated during the performance of the test and three were generated during the licensee's test results evaluation. The inspector's review of the TPCs and SDRs indicated that TPCs had been properly incorporated into the test procedure and the SDRs had been properly dispositioned and closed.

The inspectors noted during the review of the preoperational test evaluation and comment forms that all of the reviewers' comments were addressed and

resolved. The reviewers' comments and the subsequent resolution indicated that the test had been reviewed in great detail. The test review report discussed in detail the individual acceptance criteria and the test results as they related to each criteria. The report also addressed each TPC and SDR, detailing the resolution of each.

### 10.3.2 Conclusions

The licensee's results evaluation of Preoperational Test Procedure 2CP-PT-02-13, "6.9kV and 480 Volt Class IE Switchgear Undervoltage Relay Functional Test," was very detailed and thorough. The acceptance criteria were met. There were no open or outstanding items associated with the test.

## 11 FOLLOWUP (92701)

### 11.1 IE Bulletin 79-14

NRC issued IE Bulletin 79-14, "Seismic Analysis for As-Built Safety-Related Piping Systems," on August 15, 1979. On later dates, supplements to the bulletin were issued. The bulletin requested that licensees take certain actions in regard to verifying that seismic analyses were applicable to as-built plants.

#### 11.1.1 Discussion

Several inspections have been performed over the past several years on the licensee's actions on IE Bulletin 79-14. These inspections included 50-445/88-14, 50-446/88-14; 50-445/91-19, 50-446/91-19; 50-445/91-22, 50-446/91-22; and 50-445/91-201, 50-446/91-201. The remaining inspection effort was to verify that walkdown inspections discrepancies were documented for resolution and corrective actions specified for closure.

During this inspection, the inspectors examined five walkdown inspection packages and the associated Unit 2 TUEs to verify that the discrepancies were evaluated and proper corrective actions specified and completed. The inspectors did not identify any discrepancies in the review. In addition, the inspectors reviewed quality assurance audit report QAA 92-227. The audit was performed to evaluate the Unit 2 pipe stress and supports final reconciliation activities including technical adequacy, open items reconciliation and design control, and post reconciliation design control. The audit report stated that the overall results were satisfactory.

#### 11.1.2 Conclusions

Based on the results of the previously performed inspections and this inspection, it appears that all requirements of IE Bulletin 79-14 for Unit 2 were adequately addressed. This item is closed.



## ATTACHMENT 1

### 1 PERSONS CONTACTED

#### 1.1 Licensee Personnel

- # H. Bruner, Senior Vice President
- \* R. Carter, Assistant to Manager, Maintenance
- E. Glasbergen, Assistant Project Manager
- + J. Greene, Licensing Engineer, Unit 2 Licensing
- E. Gully, Engineering Management Licensing Liaison
- T. Heatherly, Licensing Engineer, Unit 2 Licensing
- \* T. Hope, Licensing Manager, Unit 2
- M. Hottel, Supervisor, Quality Assurance Testing
- R. Lackey, Principal Engineer, Operations
- # G. Merka, Licensing Engineer
- C. Nabours, Preventive Maintenance Coordinator, Startup
- G. Ondriska, Supervisor, Programs Test Group, Startup
- \* S. Palmer, Stipulation Manager
- D. Pendleton, Manager, Unit 2 Regulatory Services
- \* C. Rau, Project Manager, Unit 2 Project Management
- # D. Rencher, Manager, Unit 2 Engineering
- M. Rubano, Supervisor, Nuclear Steam Supply System Group, Startup
- + J. Snyder, Startup Manager
- \* M. Sunseri, Manager, Performance and Test
- D. Wicken, Unit 2 Maintenance

#### 1.2 Contractor Personnel

- # P. Castrichini, Project Engineer, Bechtel
- \* L. Hurst, Project Manager, Bechtel
- H. Patrick, Jr., Supervisor, Maintenance, Brown & Root
- G. Purdy, Manager, Site Quality Assurance, Brown & Root
- D. Wieland, Site Manager, Westinghouse
- # R. Yelamanchi, Engineer, Bechtel

#### 1.3 CASE Personnel

- \* O. Thero, Consultant

#### 1.4 NRC Personnel

- \* D. Graves, Senior Resident Inspector, Unit 2
- # R. Latta, Resident Inspector

In addition to the personnel listed above, the inspectors contacted other personnel during this inspection.

# Denotes personnel that attended the management debriefing on October 29, 1992.

\* Denotes personnel that attended the exit meeting on December 15, 1992.

+ Denotes personnel that attended both the October 29, and December 15, 1992, meetings.

## 2 EXIT MEETING

An exit meeting was conducted on December 15, 1992. Previously, a management briefing on the preliminary results of a portion of the inspection was held on October 29, 1992. The licensee did not identify, as proprietary, any information provided to or reviewed by the inspectors.

## ATTACHMENT 2

### LESSONS-LEARNED ACTION ITEMS REVIEWED

M035, Review Unit 2 flow diagrams for as-builts prior to startup scoping of system boundaries, initiated at program start, closed February 13, 1991, CPSES-9003795.

M043, Develop program to qualify balance of plant II over I piping and supports, initiated at program start, closed March 20, 1991, CPSES-9106898.

M047, Determine action required on Unit 2 concerning main feedwater piping erosion, initiated April 16, 1991, closed June 13, 1991, CPSES-9114520

M067, Pre-torquing and doweling requirements for Unit 2 pumps and valves should be pre-identified and included in Unit 2 design documents, initiated September 30, 1991, closed June 24, 1992, CPSES-9220192.

M068, Residual heat removal pump motor oil sampling lines should be repositioned for ease of sampling, initiated October 11, 1991, closed September 22, 1992, CPSES-9231036.

M071, Submit change to abandon service water pump re-circulation line, initiated October 30, 1991, closed July 28, 1992, CPSES-9224908.

M073, Install Design Modification 91-052 in Unit 2 for steam generator sludge lancing, initiated December 26, 1991, No closure memorandum.

M075, Ensure proper assembly and routing of oil level instrumentation tubing on reactor coolant pump motors, initiated January 17, 1992, closed July 28, 1992, CPSES-9224358.

M078, Ensure detailed inspection and maintenance of cleanliness of studs and stud hole, to ensure no stud hole damage or stuck studs, initiated December 12, 1991, closed March 12, 1992, No closure memorandum.

M079, Ensure thorough check-out of reach rod operators before turnover to startup, initiated December 5, 1991, closed March 12, 1992, No closure memorandum.

S087, Take appropriate measures to insure that vendor torque information and slotting of holes in pedestal feet is performed on Unit 2 heater drain pumps, initiated at program start, closed September 12, 1992, CPSES-9230425.

S095, Replace the Crosby safety relief valves used on the diesel generator air start tanks in response to Technical Evaluation 05 09 2052 and Plant Incident Report 85-328, NRC Notice 90-18, initiated at program start, closed December 4, 1990, CPSES-9028118.

S099, Inspect all Unit 2 Borg Warner pressure seal check valves for the machining irregularity prior to hot functional test, initiated May 16, 1992, closed July 3, 1992, CPSES-9229160.

S103, Residual heat removal pump motor bearing oil leakage, initiated September 27, 1991, closed July 3, 1992, CPSES-9219161.

S112, Place cooling systems in service any time the forced oil air cooled power transformers are energized to prevent over heating, initiated December 3, 1991, closed June 30, 1992, CPSES-9220856.

S115, Take additional steps to clean the main feedwater pump lubrication oil piping and reservoir to prevent bearing and or shaft destruction, initiated January 22, 1992, closed September 12, 1992, CPSES-9228231.

S127, Remove particulate matter in air system to meet 3 micron standard, initiated December 11, 1991, closed September 15, 1992, CPSES-9230464.

S132, Ensure primary hydrostatic procedure requires the steam generator levels to be established and monitored during the hydrostatic, initiated December 9, 1991, closed February 13, 1992, CPSES-9205050.

S134, Remove main steam isolation valves and install hydrostatic blanks for secondary hydrostatic test, initiated December 12, 1991, closed February 13, 1992, CPSES-9205049.

S163, Overhaul chillers, initiated at program start, closed July 2, 1992, CPSES-9221017.

W036, Establish on-site instrument and control commercial grade testing facilities, initiated April 12, 1991, closed June 11, 1991, CPSES-9114994.

W042, Review all "Design Modification Reviews-Construction," design modifications, and "to go" engineering design to ensure that long lead items are identified and procurement activities are planned or scheduled, initiated April 25, 1991, closed June 25, 1991, CPSES-9116261.

W053, Identify qualified life replacements that need to be installed in Unit 2 prior to first refueling and purchase them, initiated April 25, 1991, closed April 15, 1991, CPSES-9109964.

W057, Define process for verifying Unit 2 master part list item on a case by case basis, initiated April 25, 1991, closed May 28, 1991, CPSES-9113155.

W059, Procurement engineering to recommend solutions on technical evaluations, initiated April 25, 1991, closed May 1, 1991, CPSES-9111351.

W064, Change time of procurement quality assurance review of requisitions to coincide with the purchase order review, initiated April 25, 1991, QVC-91280.

W066, Issue guidelines to user groups to limit vendor contacts to technical information only, initiated April 25, 1991, closed June 12, 1991, CPSES-9115134.



W073, Develop consistent mechanism for issuance of material to construction, initiated April 30, 1991, closed June 10, 1991, CPSES-9114924.

W077, Develop logic flow charts to detail method for returning material to the warehouse, initiated April 30, 1991, closed June 11, 1991, CPSES-9114994.

W080, Ensure all items in warehouse and lay-down area have company stock numbers and item identifications, initiated May 8, 1991, closed June 24, 1991, CPSES-9115145.