

APPENDIX

U. S. NUCLEAR REGULATORY COMMISSION

REGION IV

NRC Inspection Report: 50-445/84-24

Construction Permit: CPPR-126

Docket: 50-445

Category: A2

Licensee: Texas Utilities Electric Company (TUEC)
Skyway Tower
400 North Olive Street
Lock Box 81
Dallas, Texas 75201

Facility Name: Comanche Peak Steam Electric Station (CPSES), Unit 1

Inspection At: Glen Rose, Texas

Inspection Conducted: July 1-31, 1984

Inspectors: *Dennis L. Kelley*
D. L. Kelley, Senior Resident Reactor Inspector (SRRI)
(paragraphs 2, 4, 5, and 6)

8/21/84
Date

W. F. Smith
W. F. Smith, Resident Reactor Inspector (RRI)
(paragraphs 2, 3, and 4)

8/21/84
Date

D. M. Hunnicutt
D. M. Hunnicutt, Team Leader, Task Force
(paragraph 2)

8/21/84
Date

Approved: *D. M. Hunnicutt*
D. M. Hunnicutt, Team Leader, Task Force

8/21/84
Date

Inspection Summary

Inspection conducted: July 1-31, 1984 (Report: 50-445/84-24)

Areas Inspected: Routine, announced inspection of (1) preoperational test witnessing, (2) test results evaluation, (3) licensee action on previous inspection findings, (4) plant tours, and (5) plant status. The inspection involved 165 inspector-hours by three NRC inspectors and NRC contract personnel.

Results: Within the areas inspected, no violations or deviations were identified. Two new unresolved items were identified in paragraph 3.

DETAILS

1. Persons Contacted

Licensee Personnel

- *B. R. Clements, Vice President, Nuclear Operations
- *J. C. Kuykendall, Manager, Nuclear Operations
- *J. T. Merritt, Assistant Project General Manager
- *J. H. Roberts, Construction Startup Turnover Surveillance Supervisor
- *T. P. Miller, Lead Startup Engineer
- *H. A. Lancaster, Startup Quality Assurance Specialist
- *J. C. Smith, Quality Assurance
- *T. L. Gosdin, Support Services Superintendent
- *D. E. Deviney, Operations Quality Assurance Supervisor
- C. L. Turner, Director Nuclear Training
- R. R. Wistrand, Administrative Superintendent
- J. Moorefield, Office Services Coordinator
- *R. E. Camp, Startup Manager
- *R. A. Jones, Manager, Plant Operations
- *M. R. Blevins, Maintenance Superintendent
- *R. B. Seidel, Operations Superintendent
- S. M. Franks, Special Project and Technical Support Lead
- K. B. Becker, System Test Engineer
- G. B. Mullens, System Test Engineer
- D. G. Hisey, System Test Engineer

*Denotes those present at exit interview.

The NRC inspectors also interviewed other licensee employees during this inspection period.

2. Preoperational Test Witnessing

Prior to witnessing of the test, the NRC inspectors performed a review of the test procedure. The review was conducted to verify that:

- The procedure provided a clear statement which specified the function it was to perform.
- The acceptance criteria were clearly stated and addressed the appropriate requirements.
- The communication between all persons concerned with the test was addressed.
- The procedure contained appropriate quality control hold points.

- There were provisions for verifications of actions performed with appropriate signoffs provided for assurance of procedure step performance.
- The performance of the procedure would, when completed, assure that the acceptance criteria were met.
- The procedure was clearly written, properly reviewed, and approved in accordance with the licensee's administrative procedures.

The NRC inspectors then observed the licensee's performance of the test. After verifying that the correct revision of the test procedure was in use, the NRC inspectors verified, during the test performance, that:

- There were sufficient personnel to perform the test.
- The test steps were performed in the proper sequence to yield valid results.
- Unforeseen equipment and procedure problems were resolved and documented.
- Test personnel observed procedural hold points.

In addition to the major points listed above, the performance of the testing personnel was observed to assess:

- The professional manner in which the test was performed.
- The level of familiarity of the testing personnel with the purpose and steps of the test procedure including any complicated areas requiring additional set up time.
- The level of detail contained in the pretest briefings with test personnel and operations support personnel including special assignments and specific on-station time requirements.

The specific preoperational tests that were witnessed and the NRC inspectors' observations were:

- a. ICP-PT-29-01, RT-1, "Emergency Diesel Generator (EDG) Auxiliary Systems, Retest 1"

This test was to demonstrate the proper operation of the auxiliary systems components that receive safety injection signals, automatic lockout and blockout signals, or operator lockout signals. It also tests the fuel oil transfer pump control circuits. This is the first

in a series of retests and preoperational test repeats that are to be accomplished subsequent to the EDG Owner's Group teardown and inspection on Train B.

During July 9, 10, and 11, 1984, the test was performed on Train B EDG. The NRC inspector witnessed selected portions of this test, reviewed the official test book containing the procedure, applicable changes, and test logs, and monitored the performance of the equipment being tested. The system test engineer (STE) conducted the test properly and in a professional manner.

No deviations or violations were identified during the performance of this test.

b. ICP-PT-29-02, RT-1, "Diesel Generator Control Circuit Functional and Start Test, Retest 1"

The purpose of this test was to functionally demonstrate electrical and pneumatic control circuit operability in the manual mode of operation for Train B. This test is the first preoperational test in the series which actually starts and operates the EDG. It verifies that the machine can start and be ready to load within 10 seconds.

During the period of July 14-16, 1984, the NRC inspector witnessed this test as it was performed on Train B EDG.

No violations or deviations were identified during the performance of this test.

c. ICP-PT-29-05, "Diesel Generator Reliability Test"

This test is intended to demonstrate the reliability of the EDG by performing a series of 23 consecutive starts, each start followed by loading to greater than 50% and running for not less than 1 hour each time. All five of the starts were accomplished on one (of two) air receivers to prove the system can start reliably without assistance from the air compressors.

The RRI witnessed portions of this test to verify that the testing was conducted in accordance with the approved procedure, that the test results were acceptable, and to evaluate the performance of the STE and supporting personnel conducting the test. This test was conducted during the week of July 23-29, 1984. The RRI noted key parameters and observed that expected values were achieved. Both Trains A & B EDGs were tested concurrent, alternating between EDGs to minimize lost motion. The STE was obviously familiar with the requirements of the procedure (he was the author) and followed administrative requirements as he progressed through the test.

No violations or deviations were identified during the performance of this test.

d. ICP-PT-64-01, RT-2, "Reactor Protection System"

This test was performed to demonstrate that the logic, coincidence, redundancy, fail-safe capability on loss of power, and testability of the reactor protection system functions as designed.

The NRC inspector observed that the "special precautions" and "prerequisites" listed in the test procedure were met. On July 9, 10, and 11, 1984, the NRC inspector observed the test in progress, verified procedure compliance and that testing was performed in appropriate sequence to meet objectives stated in the test procedure, and that valid test results were obtained. Test personnel performing the test were knowledgeable of the test requirements, test objectives, and were professional while performing, reviewing, and documenting the test data. Instrument calibration, component performance, and component operations were within the accepted values stated within the procedure. The test was completed on July 11, 1984.

No violations or deviations were identified during the performance of this test.

e. ICP-PT-64-05, RT-1, "Safeguards Test Cabinets/Turbine Trip Test Cabinets Blocking Circuit Operational Test"

This test was to demonstrate that both the blocking scheme test circuits and the direct actuation (go-type test) circuit for slave relay, K741, of the safeguards test cabinets and the blocking scheme test circuits of the turbine trip test cabinets function as designed.

The NRC inspector observed that the "special precautions" and "prerequisites" listed in the test procedure were met. On July 13, 14, and 16, 1984, the NRC inspector observed the test in progress, verified procedure compliance and that testing was performed in appropriate sequence to meet objectives stated in the test, and assured valid test results. Test personnel and QA personnel observed procedure hold points. The test personnel performing the test were knowledgeable of the test requirements, test objectives, and were professional while performing, reviewing, and documenting the test data. The test was completed on July 16, 1984.

No violations or deviations were identified during the performance of this test.

f. ICP-PT-31-1, Rev. 0, "Safety Chilled Water System"

This test was to demonstrate that each of the two 100% chiller and recirculation pump units will provide the required emergency fan coil unit chiller water flow for specified safety feature equipment areas in either Train A or Train B for Unit 1. This test further demonstrated that operation and supervision of the chilled water system can be accomplished by using the local or remote controls. This test demonstrated that an "SIS" (safety injection signal) or a "BOS" (blackout signal) will automatically start the safety chilled water system and makeup flow to the surge tank will be automatically controlled.

This test was observed by the NRC inspector on July 10, 11, and 12, 1984, and was completed July 12, 1984.

The NRC inspector observed that the "special precautions" and "prerequisites" listed in the test procedure were met. The NRC inspector observed work in progress, verified procedure compliance and that testing was performed in appropriate sequence to meet objectives stated in the test procedure, and that valid test results were obtained. Test personnel performing the test were knowledgeable of the test requirements, test objectives, and were professional while performing, reviewing, and documenting the test data. Instrument calibration, component performance, and component operations were within the accepted values stated in the procedure.

No violations or deviations were identified during the performance of this test.

g. ICP-PT-02-02, "118 VAC RPS Inverters"

The purpose of this test was to verify the ability of the 118 VAC uninterruptible A-C power system to provide a continuous source of power to the reactor protection system.

The NRC inspector witnessed the performance of this test during the period of July 23-27, 1984. No problems were observed during the test performance. Several data points were observed including a review of recorder charts.

No violations or deviations were identified during the performance of this test.

In addition to the above tests that were completed during this reporting period, the below listed tests were started, but are still in progress:

- (1) ICP-PT-34-01, "Main Steam Isolation Valves"

- (2) ICP-PT-64-04, "Reactor Plant System Setpoint Verification"
- (3) ICP-PT-37-03, "Auxiliary Feedwater Turbine Driven Pump"
- (4) ICP-PT-48-02, "Containment Spray System Response Time Chemical Additive Flow Test"

No violations or deviations were identified during the witnessing of the performance of these tests.

3. Preoperational Test Results Evaluation

With the assistance of supplemental inspectors provided by EG&G Idaho, Inc., under contract with the NRC, completed test packages which have been approved by the Joint Test Group (JTG) were reviewed. Attributes inspected included: 1) adequacy of the evaluation of test results, 2) assurance that test data met acceptance criteria, and 3) assurance that deviations were properly identified and resolved. An evaluation was performed on the adequacy of the licensee's administrative practices with respect to test execution and data evaluation.

The following completed test data packages were inspected:

- ICP-PT-57-01, "Safety Injection Pump Performance"
- ICP-PT-57-01, RT-1, "Safety Injection Pump Performance, Retest 1"
- ICP-PT-57-01, RT-2, "Safety Injection Pump Performance, Retest 2"
- ICP-PT-57-02, "Centrifugal Charging Pump Test"
- ICP-PT-57-02, RT-1, "Centrifugal Charging Pump Test. Retest 1"
- ICP-PT-57-05, RT-1, "Safety Injection Accumulators Preoperational Test, Retest 1"
- ICP-PT-57-06, "RHR ECCS Performance"
- ICP-PT-57-07, "Integrated Safety Injection-Normal Power"
- ICP-PT-57-08, "Integrated Safety Injection-Emergency Power"
- ICP-PT-57-09, "Check Valves and Hot Functional Safety Injection"
- ICP-PT-64-07, "Solid State Safeguards Sequencer System"

The following specific comments were made by the inspector on the completed test packages:

ICP-PT-57-06:

On data sheets 9, 10, 11, 12, and 21 through 30, suction pressures recorded on Safety Injection Pumps 01 and 02 and Centrifugal Charging Pumps 01 and 02 were very high and on two occasions overranged the gage. The NRC inspector noted that the minimum acceptable pressure requirement was met, but was concerned that the gage would be unreliable for subsequent operations. The licensee stated that these gages provide qualitative indication of suction pressure for these pumps when operated locally, which is not the normal mode of operation. The NRC inspector did not consider that any instrument, whether local or remote, should be required to operate out of its range. As such this is (open) Unresolved Item 445/8424-01.

ICP-PT-57-01

Safety Injection Pump 01 performance curve in the completed test data package does not meet the minimum acceptable pump performance curve of Figure 6.3-5 of the CPSES Final Safety Evaluation Report (FSAR). At 650 gallons per minute the pump is under a total head of about 1550 pounds per square inch (psi) when 1650 psi is the minimum. The test procedure acceptance criteria have been met, but those criteria conflict with the FSAR. The licensee recognized this potential safety question, but did not indicate whether or not the FSAR was to be changed or complied with before licensing. The NRC inspector informed the licensee that this may require resolution before the license is granted. This issue is (open) Unresolved Item 445/8424-02.

The NRC inspector noted that with exception of the two unresolved issues above, the test data packages listed were properly reviewed by the JTG and satisfied the attributes of this inspection.

No violations or deviations were identified.

4. Licensee Action on Previous Inspection Findings

(Closed) Unresolved Item (445/8415-03): Question on Qualification of NDT Technician - During the review of Transamerica Delaval Inc. (TDI) emergency diesel generator completed inspection records, the NRC inspector questioned the qualification of the technician who performed an alloy separation examination on cylinder block studs in accordance with Inspection Plan 17. The technician was required by Long Island Lighting Co. (LILCO) Procedure QCI-FS1-F11.1-080 to be qualified to LILCO Procedure QAD 2.5. Documentation in the inspection plan package showed the technician to be

qualified to LILCO Procedure QAI-11.2.6. The licensee has since produced documentation to show that QCI-FS1-F11.1-080 was revised to reflect QAI-11.2.6, and a Stone & Webster letter No. 84522/LJH/urs which indicates that training under QAI-11.2.6 is adequate preparation for operating the alloy separator. This item is closed.

(Closed) Unresolved Item (445/8418-03): Inadequate Inspection Documentation - During review of TDI emergency diesel generator completed inspection records, the NRC inspector noted that the inspection plan (IP) provided by the "Owner's Group" was revised by the TUEC maintenance engineer over the signature of the previous revision, lending confusion to what acceptance criterion was used in evaluating defects on cylinder block nuts. The "Owner's Group" consists of representatives from several utilities owning TDI diesels who have joined together for the purpose of combining and standardizing efforts to recertify TDI emergency diesel generators. The IP is not a TUEC document, and therefore the NRC inspector took exception to TUEC representatives making changes without evidence of Owner's Group concurrence. The inspection report contained in the IP package was closed out with a satisfactory reinspection that was facilitated by the IP revision, yet the related nondestructive examination (NDE) report still showed the original rejection. There was no evidence that a nonconformance report existed, which would flag the rejected NDE report and provide for followup and corrective action. In short, the "paper trail" was inadequate for this IP package. The QC supervisor indicated that the above is a series of errors in the paperwork which can be corrected because the required data is available and the quality of the hardware had not been compromised. Since this was a unique and somewhat isolated problem as it relates to the 14 IPs reviewed, and since the Owner's Group had not provided definitive guidelines on the IP package content, the NRC inspector designated this as an unresolved item. If TUEC could produce a viable "paper trail" this item would be closed.

Since the above inspection, TUEC made the appropriate corrections.

Upon reinspecting the IP package, the NRC inspector observed that Owner's Group authorization for the IP revision was obtained. This provided a valid acceptance criterion for the NDE examiner, who was able to then annotate on the NDE report that the nuts inspected were within that acceptance criterion. This in turn validated the inspection report which already indicated a satisfactory reinspection. Thus the "paper trail" is now complete. This item is considered closed.

5. Plant Tours

During this reporting period, the SRRI and RRI conducted several inspection tours of Unit 1. In addition to the general housekeeping activities and general cleanliness of the facility, specific attention was given to areas where safety-related equipment is installed and where

activities were in progress involving safety-related equipment. These areas were inspected to ensure that:

- Work in progress was being accomplished using approved procedures.
- Special precautions for protection of equipment was implemented, and additional cleanliness requirements were being adhered to for maintenance, flushing, and welding activities.
- Installed safety-related equipment and components were being protected and maintained to prevent damage and deterioration.

Also during these tours, the SRRI and RRI reviewed the control room and shift supervisors' log books. Key items in the log review were:

- plant status
- changes in plant status
- tests in progress
- documentation of problems which arise during operating shifts.

No violations or deviations were identified.

6. Plant Status

The following is a status of TUEC (TUGCO) manning levels for operations and plant testing activities as of July 31, 1984:

Operations Manning:

Authorized personnel level (including maintenance, operations, administration, quality assurance, and engineering) - 553

Number presently onboard - 499

7. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, violations, or deviations.

Two such items, disclosed during the inspection, are discussed in paragraph 3 above.

8. Exit Interview

An exit interview was conducted July 31, 1984, with licensee representatives (identified in paragraph 1). During this interview, the SRRI and RRI reviewed the scope and discussed the inspection findings. The licensee acknowledged the findings.