

U. S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

REGION IV

Report No. 50-445/78-13; 50-446/78-13

Docket No. 50-445; 50-446

Category A2

Licensee: Texas Utilities Generating Company
2001 Bryan Tower
Dallas, Texas 75201

Facility Name: Comanche Peak, Units 1 & 2

Inspection at: Comanche Peak Steam Electric Station, Glen Rose, Texas

Inspection conducted: August 1-31, 1978

Inspector: *R. G. Taylor*
for R. G. Taylor, Resident Reactor Inspector, Projects
Section

9/18/78
Date

Approved: *W. A. Crossman*
W. A. Crossman, Chief, Projects Section

9/18/78
Date

Inspection Summary:

Inspection August 1-31, 1978 (Report No. 50-445/78-13; 50-446/78-13)

Areas Inspected: Routine inspection by Resident Inspector of safety related construction activities including follow up on licensee actions on previous findings, equipment storage and maintenance, construction fire protection, welding of reactor coolant boundary and safety related piping, storage and protection of the reactor vessel and its internals, and concrete batching and testing activities. The inspection involved one-hundred twenty-six hours of inspection by one NRC inspector.

Results: Of thirteen major activities inspected, two items of noncompliance were identified in two areas (infraction - failure to follow weld monitoring procedures - paragraph 7 and infraction - failure to follow concrete testing procedures - paragraph 11).

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DETAILS

1. Persons Contacted

Principal Licensee Employees

- **R. G. Tolson, TUGCO Site QA Supervisor
- **J. V. Hawkins, TUGCO/G&H Product Assurance
 - G. C. Clancy, TUGCO QA Specialist
 - W. Varnell, TUSI Mechanical Engineer
 - A. Nease, TUGCO Test Laboratory Supervisor
 - R. V. Fleck, TUGCO/G&H Civil Inspection Supervisor
- *A. Vega, TUGCO Quality Assurance
- *D. N. Chapman, TUGCO Quality Assurance Manager
- *J. T. Merrit, TUSI Resident Manager
- *J. B. George, TUSI Project General Manager
- *D. E. Diviney, TUGCO QA Technician

Other Personnel

- P. S. Van Teslaar, Westinghouse Site Manager
- B. C. Scott, Brown & Root QC Manager
- A. Ganzmann, Brown & Root QC Inspector
- J. P. Clarke, Brown & Root QC Manager
- L. M. Williams, Brown & Root Fire Chief
- S. T. Hoggard, Brown & Root Safety Supervisor
- L. Allen, Brown & Root General Foreman - Batch Plant

The IE inspector also interviewed other contract employees during the course of the inspection.

*denotes those attending the interview on August 25, 1978.

**denotes those attending the interviews on August 21 and 30, 1978.

2. Licensee Action on Previous Inspection Findings

(Closed) Infraction (50-445/78-05): Failure to Follow Pipe Fabrication Procedures. The licensee stated, in his letter dated May 12, 1978, that all pipe counterboring tools have been modified to provide the 30° transition angle between bored and original inside diameters. The IE inspector verified that the tools have been modified. The licensee has also issued procedure QI-MCP-7-1 dated April 19, 1978, which requires a B&R quality control inspector to record the serial number of each tool used to counterbore any given pipe spool piece and to verify the continued correctness of the ground angle of each tool used during each work shift. The IE inspector verified that the procedure is being complied with by review of the required record and examination of several tools. This item is considered closed.

(Closed) Infraction (50-445/78-11; 50-446/78-11): Failure to Follow Piping Installation Procedures. The licensee stated, in his letter of July 28, 1978, that compliance with procedure 35-1195-PCI-001 was essentially attained by July 25, 1978, and is being maintained as verified through periodic audits. The IE inspector, through a series of tours of the various plant areas where pipe erection was in progress, observed that all pipe ends were capped, taped and tagged as required by the procedure. The licensee has revised the procedure to delete the requirement to use only red tape and now allows the use of other colors. The IE inspector also verified that the periodic audits of the process are being accomplished as committed. This item is considered closed.

3. General Construction Area Tours

The IE inspector toured one or more plant areas several times weekly during the reporting period to observe the progress of safety related installation work and the general construction practices involved including housekeeping. Two tours were conducted during a portion of the licensee's second shift to observe the type of work involved and the level of effort. The second shift appears to be about one third of the day shift and to largely involve civil type construction. No safety related welding effort was detected on either second shift tour. During the course of the tours, the IE inspector paid particular attention as to how various safety related components were being handled and protected during the transporting and erection processes. Included within the components observed was one reactor coolant pump casing, several service water pipe spools, and several stainless steel pipe spools. Also observed was the handling and transport of component cooling system pumps and electric drive motors.

No items of noncompliance or deviations were identified.

4. Electrical and Mechanical Safety Related Equipment Warehousing

The IE inspector extensively inspected the three primary storage warehouses, the adjacent outdoor temporary shelters and open laydown areas on August 29, 1978, with the following results:

- a. All stainless and carbon steel pipe spool pieces stored in the open-to-the-weather laydown areas were on wood dunnage with ends and branch nozzles sealed adequately to prevent the ingress of water or debris. All spools were marked with appropriate coding to allow complete identification. The acceptance status of the spools was clearly identified with "Released for Construction" or "QC Hold" tags securely affixed to each spool observed in the areas.

- b. Outdoor-stored vessels, such as the safety injection accumulators, were protected by pressurization with six to thirteen psig of nitrogen or were tightly sealed to prevent the ingress of water or debris as in the case of the volume control tank. The several vessels inspected were supplied by the NSSS vendor and the storage was found to be in accordance with his documented recommendations.
- c. Valves and pumps not yet installed were found to be in indoor warehouses on wooden pallets or dunnage. Openings were sealed, generally with wood covers, primarily for protection of weld joint preparations. The space heaters of all observed valve electric motor operators were connected to a power source and operative as evidenced by their hand warm condition.
- d. Electrical equipment such as motors for the reactor coolant pumps and safety injection pumps had their space heaters energized. The 6.9 KV switchgear had large electric lights in the lower areas providing moderate warmth to the cabinet interiors. Such equipment was stored in permanent warehousing on substantial dunnage to allow good air circulation.

No items of noncompliance or deviations were identified.

5. Electrical and Mechanical Safety Related Equipment In-Place Storage

The IE inspector observed the status of the in-place stored equipment, such as the auxiliary feedwater pumps, component cooling water heat exchangers, and valves with motor operators. All were found to be covered, protected or energized in accordance with good nuclear construction practices and the licensee's procedures, primarily 35-1195-MCP-10, "Storage and Storage Maintenance of Mechanical and Electrical Equipment."

No items of noncompliance or deviations were identified.

6. Construction Fire Protection

The IE inspector gave particular attention to the availability of fire protection equipment in the various areas where work was in progress which might provide an ignition source such as welding or grinding. The IE inspector observed that generally, but not in every case, welders had a portable fire extinguisher at hand or near by. The IE inspector examined approximately ten (10) portable extinguishers in work areas and found all but one to be properly charged for use. The single fire hose standpipe and hose reel found in the auxiliary building appeared to be usable without difficulty. The IE inspector noted that no significant accumulations of burnable materials such as wood or rags were evident nor were any paints or other potential highly combustible solvents or oils found where they weren't in immediate use.

Discussions with appropriate site personnel indicated that, while no formal procedure is currently available covering fire prevention or protection, there is an organized fire brigade headed by experienced personnel and that the combined site safety, medical and fire brigade units of approximately twenty-six people have been trained in fire fighting methods. The safety organization, with the assistance of the craft labor force, routinely check portable fire extinguishers for their charge condition.

An interview with a foreman of electricians on August 28, 1978, indicated that he was aware of where the portable fire extinguishers in his area were located. The IE inspector verified that the extinguishers were where the foreman indicated and were fully charged.

The IE inspector had no further questions regarding this matter.

7. Reactor Coolant Pressure Boundary Pipe Welding

The IE inspector observed the licensee's contractor personnel performing welding on two joints in the primary loop piping.

On August 18, 1978, the IE inspector observed two welders working on opposite sides of joint FW-15 which connects the cold leg pipe to the reactor coolant pump discharge nozzle in loop 2.

On August 21, 1978, the IE inspector observed a single welder working on joint FW-9 connecting the loop 2 hot leg pipe to the reactor vessel nozzle.

All three welders were using the gas tungsten arc welding (GTAW) process in accordance with Brown & Root Welding Procedure No. 88025, Revision 5. The Weld Data Card for FW-15 indicated that the welders were in the process of making weld pass number 8. The Weld Data Card for FW-9 indicated that pass 13 was in process at the time of the observation. Weld Material Requisitions A008481 and A008482 were issued to the two welders for work on joint FW-15 and Weld Material Requisition A011053 was issued for joint FW-9. All reflected issuances of weld rod material Heat No. 462317. It was noted from the Weld Data Cards that Heat No. 462317 has been utilized to make all weld passes in both joints.

The IE inspector subsequently reviewed the Certified Material Test Report furnished by Sandvik, Inc. for Heat No. 462317 and established that all requirements of ASME Section III, paragraph NB2400 and Section II, part SFA 5.9 had been satisfied.

The IE inspector also verified that Weld Procedure No. 88025, Revision 0, had been qualified as documented by Procedure Qualification Record 0808AA114 and that each of the welders observed had been performance tested; all in accordance with the requirements of the ASME B&PV Code, Section III.

The IE inspector was unable to establish whether the pipe materials involved in the weld joints satisfied the commitments of the FSAR or the requirements of the Code since the licensee was unable to locate the Certified Material Test Reports furnished by the supplier of the pipe.

This will be considered an unresolved item until such time as the reports are made available for review.

The IE inspector observed that while the weld procedure provided data necessary to control weld heat input which is an FSAR commitment when welding stainless steel, none of the machines in use had metering which would indicate the machine output. Discussions with licensee personnel revealed that frequent monitoring of welding performance was accomplished by construction personnel in accordance with Procedure No. 35-1195-WCP-3. QC personnel also monitor performance, but much less frequently, typically at 90 day intervals. Review of WCP-3 revealed that each welder is to be monitored at least once every ten working days to assure the welder's conformance to welding parameters.

Review of the records of this monitoring activity, however revealed that (at least in regard to the welders observed as outlined above) the monitoring had not been done for intervals of from two to eight months.

The licensee researched the extent of the breakdown in the monitoring program and informed the IE inspector that, in fact, the required monitoring in some instances had not taken place, as distinguished from misplaced documentation.

The IE inspector stated that the lack of monitoring of weld performance is in compliance with 10 CFR 50, Appendix B, Criterion V.

8. Welding of Safety Related Pipe

During this inspection period, the IE inspector observed the inprocess welding of one stainless steel pipe joint and one carbon steel joint.

On August 11, 1978, the IE inspector observed a welder working on weld FW-12 as shown on isometric drawing SW-1-YD-13-1 and identified as part of line 30-SW-1-012-150-3 as shown on figure 9.2-1 of the FSAR. The

welder had in his possession a "Weld Data Card" authorizing him to perform welding on the joint and a weld technique document providing him with necessary welding instructions. In addition, the welder had a "Weld Material Requisition" for eighty type E-7018 weld electrodes, all of which were observed to be contained in a portable rod oven. The IE inspector observed that the welder was accomplishing his assigned work in accordance with his weld technique document which was referenced as part of Weld Procedure No. 11010, Revision 0.

On August 15, 1978, the IE inspector observed inprocess welding of joint 5A in the pipe fabrication shop. The joint is identified on drawing CS-1-AB-64-1 and is part of line 3-CS-1-032-301R as shown on figure 9.3-10, sheet 2 of the FSAR. It was observed that the welder was performing his work in accordance with his weld technique document referenced as part of Weld Procedure No. 88023, Revision 3. The welder also had in his possession the proper Weld Data Card and Weld Material Requisition.

The IE inspector subsequently verified that Weld Procedure No. 11010 and No. 88023 had been qualified by Procedure Qualifications 0101AB119 and 0808AA204, respectively. The IE inspector also verified that the welders observed had been performance tested and qualified by their employer, Brown & Root. The weld procedures (WPS), the procedure qualifications (PQR) and the performance qualifications were compared to the requirements of the ASME Section III and Section IX and found to be consistent.

No items of noncompliance or deviations were identified.

9. Protection of Stored Reactor Vessel Internals

The IE inspector examined the stored upper and lower sections of the reactor vessel internals in relation to NSSS vendor recommendations, Brown & Root Procedures MCP-10, "Storage and Maintenance Requirements," and MEI-10-431, "Supplemental Requirements for Reactor Vessel Internals Package."

The upper internals were found to be fully wrapped in plastic which in turn was fully covered by a heavy weight prefabricated tarpaulin with no openings. The package was stored in a specifically constructed field building, well sealed to the elements. The lower section was protected in the same manner as the upper section except that access to the interior is available through a locked small door. The IE inspector examined the interior which was found to be clean and free of any collected moisture or debris.

The IE inspector reviewed records of measurements of the interior dimensions of the lower section made by B&R under the observation of the NSSS representative to detect any distortion of the structure due to its horizontally stored position. While the dimensions show variations of up to .005 inches, the NSSS representative stated that these variations were well within the vendor's requirements.

No items of noncompliance or deviations were identified in this area of the inspection.

10. Installed Reactor Pressure Vessel Protection

The IE inspector observed, on August 2, 1978, that the reactor pressure vessel top opening was completely covered with a prefabricated assembly containing trap doors for access to the vessel interior. The IE inspector observed that each trap door was securely padlocked at the time of the visit. It was ascertained that the padlock keys were in the possession of a craft labor foreman. Discussions with licensee personnel established that procedures have not yet been developed for vessel cleanliness control or for access control. The licensee contends that the cover prevents damage from heavy debris falling into the vessel and that the padlocks are there only to prevent the curious from opening the trap door and falling into the vessel. The licensee indicated that cleanliness and access control procedures will be developed and implemented when required, such as when internals installation is initiated. The IE inspector discussed this program with the NSSS representative who indicated concurrence with the licensee's approach.

No items of noncompliance or deviations were identified.

11. Concrete Laboratory and Batch Plant Activities

During a plant tour on August 30, 1978, the IE inspector observed that a relatively large concrete placement was being made in the containment interior. The placement was determined to be number 101-4860-008, a wall around the steam generators of about 450 cubic yards, using Concrete Design Mix No. 133.

The IE inspector visited the batch plant to observe operations. It was verified that the water, cement and aggregate primary scales were within their calibration period running from May 30 to August 30, 1978, and that the digital readout devices on the automatic control panel correlated to the primary scale readings. The batch tickets in turn correlated to the digital readout of the control panel.

The IE inspector then visited the truck to pumper discharge area to observe the acceptance testing of the fresh concrete. The observation indicated that three laboratory technicians were assigned to the placement and were performing all required tests in accordance with licensee

procedures QI-QP-11.1-11, "Slump of Portland Cement Concrete," QI-QP-11.1-12, "Air Content of Freshly Mixed Concrete by the Pressure Methods," and QI-QP-11.1-15, "Temperature of Fresh Concrete." It was noted, however, that while the test sample was being taken from the batch identified by ticket number 45623, the test technician took only one discharge sample. Licensee procedure QI-QP-11.1-10, "Sampling Fresh Concrete," which is comparable to ASTM C-172 of the same title, requires that two or more samples be taken from the middle portion of the load. The IE inspector interviewed the technician relative to how he was to take the sample and was told that when taking samples only involving slump, air content and temperature, as distinguished from those also involving strength cylinders, "they" have always taken only one sample. The IE inspector asked the technician if the procedural exception was documented; the technician indicated he wasn't sure. The IE inspector then interviewed the test laboratory supervisor to determine if he, the supervisor, was aware of the procedural requirement and what his technician was actually doing. The supervisor was fully aware of the requirements, but not of the actual practice. The supervisor established, by discussions with others of his staff, that the observed practice was standard among the technicians.

The IE inspector informed the licensee that failure to follow the concrete testing procedures was in noncompliance with 10 CFR 50, Appendix B, Criterion V.

13. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of non-compliance, or deviations. An unresolved item disclosed during this inspection period is discussed in paragraph 7 and will hereafter be referred to as "Documentation of Reactor Coolant Pipe Quality."

14. Management Interviews

The IE inspector met with licensee representatives (denoted in paragraph 1) on August 21 and August 30, 1978, to discuss the items of noncompliance disclosed on those days of inspection. In addition, the IE inspector participated in a meeting with licensee representatives (denoted in paragraph 1) at the conclusion of the inspection^{1/} on August 25, 1978, by other NRC IE personnel. In each meeting, the licensee acknowledge understanding the discussed items but made no commitments.

^{1/}See Inspection Report 50-445/78-12; 50-446/78-12