

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

REGION IV

Report No. 50-445/81-02; 50-446/81-02

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 and 2

Inspection at: Comanche Peak Steam Electric Station

Inspection conducted: February 1981

Inspector: *W. A. Crossman* 3/19/81
for R. G. Taylor, Resident Reactor Inspector Date
Projects Section No. 3

Approved: *W. A. Crossman* 3/19/81
W. A. Crossman, Chief, Projects Section No. 3 Date

Inspection Summary:

Inspection During February 1981 (Report 50-445/81-02; 50-446/81-02)

Areas Inspected: Routine, announced inspection by the Resident Reactor Inspector (RRI) including general site tours; protection of installed and uninstalled equipment; installation and welding of safety-related piping; the design and installation of pipe supports and restraints. The inspection involved eighty-five inspector-hours by the RRI.

Results: Of the four major areas inspected, no violations or deviations were identified in three areas. One violation was identified in the area of pipe installation (violation - failure to follow procedures for piping installation - paragraph 2).

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DETAILS

1. Persons Contacted

Principal Licensee Personnel

- *D. N. Chapman, TUGCO, Quality Assurance Manager
- *R. G. Tolson, TUGCO, Site Quality Assurance Supervisor
- *J. R. Merritt, TUSI, Engineering and Construction Manager

Other Persons

J. V. Hawkins, Brown and Root, Project Quality Assurance Manager

The RRI also interviewed other licensee and Brown and Root employees during the inspection period including both craft labor and QA/QC personnel.

*Denotes those persons with whom the RRI held on-site management meetings during the inspection period.

2. Site Tours

The RRI toured the safety-related plant area several times during the inspection period to observe the general progress of construction and the practices involved. During a tour on February 20, 1981, which included the 790 ft. level of the Unit 1 Safeguards Building, the RRI noted that a run of piping, estimated to have been about 18 feet long, was unsupported except for being attached to a valve by the connecting weld. Further examination revealed that valve was also supported at the other end by a weld to a continuing run of pipe which passed through a sleeve in the adjacent concrete wall. The unsupported length of pipe was estimated to weigh approximately 1500 lbs while the valve may have weighed at least that much more, all combining to place a considerable stress in the valve body. Such practices are not considered to be good industry practice and are specifically prohibited by the Piping Erection Specification, MS-100 and site procedures. An earlier comparable situation was the subject of a Notice of Violation issued with Inspection Report No. 50-445/80-11 to which the licensee has responded with a commitment to instruct the craft via procedures not to leave unsupported pipe in place.

The licensee's commitment was implemented by a revision to Brown and Root Procedure CPM-6.9E which prohibited pipe from being supported by blocks, jacks or similar methods if the pipe run were to be unattended. It appeared to the RRI that this specific instruction had been violated in that there was a floor jack adjacent to the pipe and there was no evidence that there had ever been a more positive support in position. The RRI was also aware that several Nonconformance Reports have been issued during the past year, two of which are still active, dealing

with the same problem. These Nonconformance Reports, along with the incident related above, indicate that the corrective action taken earlier was not completely effective. The RRI informed both the licensee and Brown and Root QA management of the findings which was in turn followed up with an official Notice of Violation transmitted by letter, dated February 25, 1981.

3. Protection of Major Installed Equipment

The RRI observed that the reactor vessel internals (core support structure) continued to be partially installed within the Unit 1 reactor vessel. The vessel head and the lifting rig assembly were found to be adequately covered with heavy plastic to provide protection from construction dust and small debris. The Unit 2 reactor vessel was observed to be well protected in its installed location with the internals remaining in their temporary enclosure.

The RRI observed that electric pump drivers and valve actuators continued to have their space heaters activated in that each unit checked was warmer than near-by metal surfaces. The RRI also observed that installed instrument sensing devices were well covered with wooden boxes wired in place and that partially installed instrument impulse tubing runs were adequately plugged, all in accordance with good practices.

No violations or deviations were identified.

4. Protection of Uninstalled Equipment

The RRI toured the several piping laydown areas to observe the condition of the piping spools prior to installation. All were found to be well capped and supported off the ground. The stainless steel spools evidenced little or no rust which would indicate that the handling and welding practices in both the on-site and off-site pipe fabrication shops have been adequate. In connection with the tours of lay-down areas, the RRI also examined several moment restraints which were the subject of a Notice of Violation (Inspection Report No. 50-445/80-20) and observed that the weld joints were relatively smooth and appeared to be of good quality.

No violations or deviations were identified.

5. Safety-Related Piping Installation and Welding

The RRI made several observations of the handling practices relative to piping components during the inspection period, both in the on-site fabrication shop and within the main plant buildings. With the exception described in paragraph 2, "Site Tours," the practices were consistent with the requirements outlined in Construction Procedure 35-1195-CPM-6.9, Project Specification MS-100, and good industry practice.

The RRI observed the following welds being made during the inspection period:

<u>Weld Number</u>	<u>Isometric No.</u>	<u>Filler Metal Ht.</u>	<u>Welder(s)</u>	<u>Procedure</u>
FW-11	RC-2-520-001	464176	AMS-BRS	99028
FW-8	FW-1-RB-0058-1	87401	BGU	11020
FW-7	FW-1-RB-0058-1	87401	BGU	11020

The first of the above welds connects the Loop 2 Reactor Coolant Crossover piping to the associated Steam Generator of Unit 2 Reactor. The latter welds are located in Line 6-FW-1-099-1303-2 in the Unit 1 Steam Generator Feedwater system. The RRI verified that the welders, weld procedures and filler metal had all been qualified in accordance with applicable portions of the ASME Code.

The RRI examined the radiographs of the following welds for compliance to the requirements of ASME Section III for weld quality and Section V for the quality of the radiographs:

<u>Weld No.</u>	<u>Isometric No.</u>	<u>Line No.</u>
FW-2-2 and FW-1	RC-1-RB-05	12-RC-1-007-2501R1
FW-8 and 8-1A	SI-1-RB-60	10-SI-1-181-2501R1
FW-7	SI-1-RB-053	8-SI-1-091-2501R1
FW-20	SI-1-RB-016	6-SI-1-101-2501R1
W-19, W-18, W-21 & W-20	RC-2-RB-071	3-RC-2-111-2501R1
W-32, W-37, W-33 & W-35	RC-2-RB-071	3-RC-2-146-2501R1
W-36 & W-34	RC-2-RB-071	3-RC-2-146-2501R1
W-31	RC-2-RB-071	6-RC-2-108-2501R1
FW-5-1	CT-1-RB-020	6-CT-1-075-301R2
W-14	SI-2-SB-045	4-SI-2-039-1501R2
FW-10	FW-1-SB-017	18-FW-1-034-2003-2

No violations or deviations were identified.

6. Design and Installation of Pipe Supports and Restraints

The RRI selected eight pipe supports and restraints associated with Line 12-SI-1-031-152R2 and which represent all of the supports installed as of this inspection period and about half the total of those to be installed on the line by completion of construction. The objective of the inspection was to determine whether:

- a. The supports and restraints had been fabricated utilizing the specified materials shown on the design drawings and that the workmanship was commensurate with the requirements of the applicable Code, ASME Section III.
- b. The QA/QC documentation adequately reflected the quality of construction.
- c. The design had been adequately reviewed where field changes had been required.

The RRI obtained the current drawing for each selected item and inspected the items for conformance to the drawings with particular emphasis being placed on the size of the concrete anchor bolts used to attach the items to the building structure and to the quality of the welds involved. Several of the items were found to have been painted which would effectively mask any cracks in the welds that might be present but the size and general appearance of the weld could be effectively verified. The remaining items were not painted and could be fully examined. It was found that each support and restraint had been fabricated from the materials specified and that the anchor bolts were of the diameter and length required with full embedment. The welding was of the correct size and the surface appearance indicated sound workmanship with no evidence of cracking.

The RRI obtained and reviewed the QA/QC documentation for each item. The documentation was found to adequately reflect the quality of construction including the identification of materials and the welder. All were qualified for the process and procedure used. One of the selected items was a mechanical type snubber wherein the snubbers were noted during the physical inspection as not having been installed. This fact was appropriately noted on the QA/QC documentation. The documentation also reflected that the anchor bolt tightening (preload) values had been verified as required by site procedures.

The RRI noted that four of the eight drawings had been modified by site engineering via Component Modification Cards. The site engineering procedures and instructions require that such modifications be reviewed after the fact by an independent design review group to assure that the modified item will safely carry loads to be imposed on the item during normal and emergency conditions. None of the items in the inspection sample had actually been through the review process although each was identified to be scheduled for review in the future. One of the review group engineers did, however, take the RRI through the calculational series using the procedural documentation to show how the review is conducted. The RRI noted in the process that the engineer used a calculated embedment depth for the concrete anchor bolts rather than the minimum embedment depth specified by site Construction Procedure CEI-20 which details the installation process for the anchor bolts and is particularly applicable when embedment depth is not specified by the drawing as was the case with all of the samples selected. The engineer

explained that his calculated embedment was that which would have to be obtained to preload (torque) the bolts, considering the specified bolt length. The RRI concurred in the logic but asked how he verified that no shimming/grouting had taken place between the hanger baseplate and the ceiling to which it was being secured. The engineer replied that such shimming/grouting was not reflected on the as-built QA/QC records (in the possession of the RRI during the interview) which was also true. The RRI subsequently reviewed other drawings in the sample and concluded that the original designers had also assumed that no shimming and grouting would be necessary in securing other comparable supports and restraints. Considering that the RRI had verified during this inspection (and the previous one, Inspection Report No. 50-445/81-01) that only specified anchor bolts had been used and that shimming/grouting had not been encountered, it appeared that the designer and/or design reviewers assumptions were valid. The RRI was concerned, however, because the site Construction Procedure CPM-9.10 for hanger installation allows such shimming and grouting where necessary and without engineering concurrence. The companion QA/QC inspection procedure does not require documentation of the shimming and grouting on the as-built QA/QC record although a document is generated to assure that the grouting is accomplished by another element of the construction force. The RRI discussed the above concern with both the licensee's QA management and engineering management who committed to identifying any supports that may have been shimmed and grouted in the past; to refining the procedures to eliminate the possibility that embedment of anchor bolts less than that predicated by the design would occur without appropriate documentation; and to reanalyzing any subsequently identified cases where this may have occurred. Since only a potential for noncompliance was identified in the course of this inspection rather than an actual noncompliance, this matter will be considered to be an unresolved item which will hereafter be identified as "Engineered Depth of Concrete Anchor Bolt Embedment."

No violations or deviations were identified.

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. An unresolved item disclosed during the inspection is discussed in paragraph 6.

8. Management Meetings

The RRI met with one or more of the persons identified in paragraph 1 on February 3, 4, 6, 13, 17, 19, 20, 23, and 25, 1981, to discuss inspection findings and the licensee's actions and positions.