

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

IE Inspection Report Nos. 50-445/76-08
50-446/76-08

Docket Nos. 50-445
50-446

Applicant: Texas Utilities Generating Company
2001 Bryan Tower
Dalla., Texas 75201

Category A2

Facility: Comanche Peak Steam Electric Station
Units 1 and 2

Location: Glen Rose, Texas

Type of Licensee: W, PWR, 1161 MW(e)

Type of Inspection: Routine, Unannounced

Dates of Inspection: July 26-30, 1976

Dates of Previous Inspection: July 13-16, 1976

Principal Inspector: *R. C. Stewart*
R. C. Stewart, Reactor Inspector

8/19/76
Date

Accompanying
Inspectors:

A. B. Rosenberg, Reactor Inspector (Details II)

R. E. Hall, Chief, Engineering Support Section (Details III)

Reviewed by:

W. A. Crossman
for W. A. Crossman, Chief, Projects Section

8/19/76
Date

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SUMMARY OF FINDINGS

I. Enforcement Actions

A. Items of Noncompliance

1. Violations

None

2. Infractions

a. 76-08/I.A.2a Document Control

Criterion VI, Appendix B, 10 CFR 50, "Document Control," which states, "Measures shall be established to control the issuance of documents, such as ... procedures, and drawings, including changes thereto These measures shall assure that documents, including changes, are ... distributed to and used at the location where the prescribed activity is performed." Brown & Root Construction Procedures 35-1195-DCP-3, Rev. 4, "Reproduction," and 35-1195-DCP-3, Rev. 3, "Document Control Procedure for Distribution," implement these provisions.

- (1) Contrary to the above requirements, Gibbs & Hill drawing G-H 2323-S1-0620, Rev. 1, "Safeguards Building Miscellaneous Parts Plans Reinforcement," control number 034 was not controlled in that it was in the field on the drawing stick. The document control office had received notification that Rev. 1 had been removed and destroyed and replaced by Rev. 2. (Details II, paragraph 4)
- (2) Contrary to the above requirements, Interim Change Notice 2 (ICN #2) to Brown & Root Construction Procedure 35-1195-CCP-14, Rev. 0, "Concrete Pre-Pour Inspection and Pour Card Sign-Off," control number 034 was not controlled in that ICN #2 was not available at the location of the subject procedure. ICN #1 and ICN #3 were available. (Details II, paragraph 4)

b. 76-08/I.A.2.b TUSI QA Documentation of Surveillance Activities

10 CFR 50, Appendix B, Criterion V, states in part: "Activities affecting quality shall be prescribed by documented instructions, procedures or drawings of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures or drawings." CPSES QA Plan, Section 3.0, "Site QA Construction Surveillance," states in part: "The results of surveillance activities are to be documented by use of the site surveillance form (Figure 3.0.1)."

Contrary to the above requirements, the TUSI Site Surveillance Inspector observed that the F&N QA Manager's duties and responsibilities encompassed engineering functions beyond that which is described in the CPSES QA program manual. This item of nonconformance was not documented as prescribed in the TUSI QA Plan. (Details I, paragraph 7)

3. Deficiencies

None

B. Deviations

None

II. Licensee Action on Previously Identified Enforcement Matters

A. Items of Noncompliance

Infractions

76-07/I.A.2 Welding of Safety Related Components

During this inspection the B&R Miscellaneous Steel Fabrication Shop had not resumed fabrication activities on safety related miscellaneous steel components as a result of a "stop-work order" initiated by the TUSI QA Site Supervisor. B&R is currently continuing the development of plans and procedures for miscellaneous steel fabrication in accordance with the CPSES PSAR, Section 17.1.1.5.

This matter remains unresolved pending review of the licensee's written statement of explanation in reply to the written notice sent to the licensee August 5, 1976.

B. Deviations

76-07/I.B Stop-Work Authority

As previously reported, this matter is in conjunction with the infraction, Item 76-07/I.A.2 above. The matter remains unresolved pending IE review of the written reply to this item.

III. New Unresolved Items

76-08/III.A Extra Concrete Cylinders - DDR-C-320

Extra concrete cylinders were not cast for all batches of concrete batched without ice as required by DDR-C-320 and attachments. Although the concrete cylinder requirements of DDR-C-320 were waived as agreed by TUSI, G&H, B&R and R. W. Hunt Co., there was no evidence of this verbal agreement observed by the IE inspector during the inspection. (Details II, paragraph 3.b)

76-08/III.E B&R Pipe Shop Fabrication QA/QC Program

The current B&R pipe fabrication program includes a plan to initiate fabrication from unapproved drawings supplied by a sub-contractor which is contrary to the CPSES PSAR, paragraph 17.1.3.3. In addition, the B&R QA/QC plan/program does appear to meet the prescribed requirements contained in the CPSES PSAR, paragraph 17.1.1.5. (Details I, paragraph 6)

IV. Status of Previously Reported Unresolved Items

CDR - Unit 1 - Containment Base Mat Coring

This item was identified during a previous inspection ^{1/}. The final report has been received and reviewed by IE Region IV. Matters concerning repair procedures, revised procedures and engineering evaluations will be reviewed during subsequent inspections. This item remains open. (Details II, paragraph 5)

76-07/1. Incomplete CB&I Forms

Chicago Bridge and Iron Company (CB&I) did not have fully completed forms G0830 for several pieces of liner plate. The problem had been identified by CB&I internal audit prior to this inspection, but has not been corrected.

This matter was not reviewed during this inspection. The item remains unresolved.

V. Design Changes

None

VI. Unusual Occurrences

None

VII. Other Significant Items

None

VIII. Management Interview

Site Meeting

On July 30, 1976, at the conclusion of the inspection, a meeting was held with the following licensee representatives in attendance:

Texas Utilities Services, Inc. (TUSI)

B. G. Bradley, Vice President

1/ IE Inspection Report 50-445/76-04, Section III, dated April 20, 1976

Texas Utilities Services, Inc. (TUSI) continued

H. C. Schmidt, QA Manager
C. H. Gatchell, Resident Manager
P. M. Milam, Site QA Supervisor
R. H. Hickman, Project Engineer

Gibbs & Hill (G&H)

J. J. Moorhead, Resident Engineer
R. V. Fleck, QA Supervisor
J. V. Hawkins, Site QA Representative

Brown & Root, Inc. (B&R)

H. C. Dodd, Project Manager
P. L. Bussolini, Project QA Manager
W. E. Childress, Chief Project Engineer

Freese & Nichols (F&N)

R. G. Thompson, Project Engineer
J. M. Dodson, Resident QA Manager

Mason-Johnson Associates (MHA)

R. C. Mason, Project Manager
W. T. Cromeans, Resident Chief Technician

Items of Noncompliance

During the meeting, the IE inspectors identified and discussed the following items of noncompliance:

Document Control (Details II, paragraph 4)

TUSI QA Documentation of Surveillance Activities (Details I, paragraph 7)

Unresolved Items

During the meeting, the IE inspectors identified and discussed the following unresolved items:

Extra Concrete Cylinders - DDR-C-320 (Details II, paragraph 3.b)

The licensee representatives indicated that the matter would be reviewed.


B&R Pipe Shop Fabrication QA/QC Program (Details I, paragraph 6)

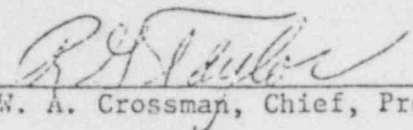
The licensee representatives stated that the matter regarding the use of unapproved vendor drawings for pipe spool fabrication would be reviewed

and corrective measures initiated.

In discussing the TUSI requirements prescribed in paragraph 17.1.1.5, the licensee representatives indicated that the requirements are currently under review by B&R engineering staff and are being incorporated in the B&R QA/QC plans/programs for both the miscellaneous steel and pipe fabrication shops.

Subsequent to the management interview on July 30, a meeting was held by the IE inspectors with Messrs. B. G. Bradley and H. C. Schmidt. The purpose of the meeting was to briefly discuss the overall QA program status, trends, enforcement history and matters of IE concern reflected in the TUSI monthly reports and QA surveillance committee reports. A follow-on meeting is currently scheduled for September 3, 1976, at the Region IV offices.

Inspector: 
R. C. Stewart, Reactor Inspector, Projects Section

Reviewed by: 
W. A. Crossman, Chief, Projects Section

1. Persons Contacted

a. Texas Utilities Services, Inc. (TUSI)

B. G. Bradley, Vice President
C. H. Gatchell, Resident Manager
H. C. Schmidt, QA Manager
P. M. Milam, Site QA Supervisor

b. Gibbs & Hill (G&H)

R. V. Fleck, Site QA Supervisor
J. V. Hawkins, Site QA Representative

c. Brown & Root, Inc. (B&R)

H. C. Dodd, Project Manager
P. L. Bussolini, Project QA Manager
D. L. Hansford, Senior QC Engineer
R. Crosno, QC Engineer (Mechanical)
H. G. Ruble, Pipe Shop Superintendent
W. W. Lloyd, General Foreman, Piping
G. W. Allen, Piping Foreman

d. Freese & Nichols (F&N)

J. M. Dodson, Resident QA Manager
W. L. McGrath, Assistant SSI Dam QA Administrator

e. Mason-Johnson Associates (MJA)

R. D. Cody, Assistant Resident Technician

2. Scope of Inspection

This portion of the inspection was limited to a follow-on review of QA/QC records relative to the SSI Dam construction; observation of the SSI Dam fill placement; a review of the pipe shop fabrication program and facilities;

and a review of TUSI QA/QC documentation relative to the status of TUSI management participation in the QA program.

3. Status of Project

The plant progress, as of July 24, 1976, is reported as 15.3% complete. (Unit 1, 13.5% and Unit 2, 1.8%)

CBSI construction crews are continuing installation of the Unit 1 containment wall liner plates. The ninth tier ring is currently being positioned and welded in place.

Installation of the Unit 2 containment base mat reinforcing steel, to the 805'-2" elevation, is still in progress.

Work is continuing on the foundation installations for the auxiliary, safeguards, and turbine buildings. The first concrete pours for the auxiliary building columns were completed the past week.

Construction of the SSI Dam is continuing. Fill placement is reported 33% complete as of July 1, 1976.

4. SSI Dam - Work Observation

On July 26 and 29, 1976, the IE inspector observed fill placement activities at the SSI Dam site. On July 26, it was observed by the inspector that portions of a previously placed two foot lift rock fill layer was in the process of being removed. During subsequent discussions with the licensee representatives and a review of the related QA/QC records, it was revealed that, of fourteen gradation tests taken of the particular in-place rock fill layer (elevation 746' to 749'), nine test results indicated out-of-specification conditions. The percentages of material passing the 12", 4", and 1/2" sieve sizes were excessive in a range of .8% to 5%. The out-of-specification condition has been attributed to high moisture condition during the rock crushing operation.

The QA/QC records indicate approximately 8200 cu. yds were removed. Removal began July 23, 1976, and was completed July 27, 1976.

The IE inspector reviewed the overall QA/QC activities involved with the removal, stockpiling, replacement, and documentation related to this matter. No discrepancies were identified in this part of the inspection.

5. SSI Dam - Records Review

On July 29, the IE inspector met with the cognizant MJA QC Representative for the purpose of a follow-on review of the QC testing documentation relative to the fill placement during construction of the SSI Dam. The

inspector randomly selected test records of in-place rock shell densities and gradation tests; in-place impervious clay core materials densities; and in-place A&B filter material gradations. No discrepancies were identified in this part of the inspection.

6. B&R Pipe Fabrication Facility

On July 27, the IE inspector conducted a walk-through of the on-site B&R pipe fabrication facility. In addition, the B&R representatives briefly described the proposed Quality Assurance program currently being developed for the on-site fabrication of "Q" listed pipe spool pieces, 6 inches and under, and related assemblies.

At present, the pipe shop fabrication activities are restricted to a limited amount of non-safety related piping fabrications. B&R is in the process of developing the Pipe Fabrication ASME Manual, with an intended ASME "N" stamp certification by early December.

During the inspector's review of the B&R proposed program, the inspector was informed that the current plan includes the involvement of the Grinnell Corporation providing B&R with isometric pipe spool drawings which are to delineate fabrication requirements. The licensee representatives further indicated that the Grinnell Isometric Drawings are not intended to be an approved Gibbs & Hill Drawing, nor an approved Grinnell Drawing. This matter appears to be contrary to the CPSES PSAR, Section 17.1, paragraph 17.1.3.3, wherein it states in part, "B&R, as the constructor, will receive only approved drawings, specifications and special instructions from Gibbs & Hill."

The IE inspector also indicated to the licensee representatives that the proposed B&R plan/program does not appear to provide the necessary requirements prescribed by the CPSES PSAR, Section 17.1, paragraph 17.1.1.5, wherein it states, "The TUSI/TUGCO QA plan requires that an inspection procedure include flow charts, shop travelers or narrative description of the sequence of activities or operation for fabrication, processing, assembly, inspection and test. Instructions shall indicate the operations or processes to be performed,"

During subsequent discussions held by the IE inspector with the licensee representatives, the cognizant TUSI representative informed the IE inspector that these matters will be reviewed to insure that specific requirements prescribed by the PSAR are contained in the B&R Pipe Shop Fabrication QA Program.

The IE inspector informed the licensee representative that these matters will be considered unresolved pending IE review of the final TUSI approved B&R QA/QC plan/program for the pipe shop fabrication processes.

7. TUSI - QA/QC Documentation Review

During the inspection, the IE inspector conducted a documentation review of the TUSI QA administrative activities related to management participation and control of other on-site organizations performing quality assurance functions.

The review of TUSI QA documents include: monthly site QA activity summary reports, dated October 17, 1975 through July 1, 1976; quarterly QA surveillance committee reports, dated October 17, 1975, February 13, 1976, April 8, 1976 and July 2, 1976; and other related internal memoranda.

During the inspector's review of the above documents, the inspector observed that the site QA activity summary report for the month of May, dated June 4, 1976, included a matter of concern to the TUSI site QA staff in that the work activity of the Freese & Nichols QA manager is encompassing site management and/or engineering activities. This matter is identified under Item 4.f in the May report. The matter was again identified as Item 4.d in the June report, dated July 1, 1976.

During subsequent discussions held by the inspector with TUSI site representatives and the F&N site QA manager, the inspector was informed by the F&N QA manager that his duties and responsibilities do include project engineering activities and, in fact, he is the Senior Site Representative for F&N. This situation is not in accordance with the duties and responsibilities described in the "CPSES QA Plan Supplement-SSI Dam," Revision I, dated October 17, 1974, Section I, paragraphs 1.4.3 and 1.4.4. The IE inspector was also informed that the matter had been identified during a routine site surveillance inspection of F&N activities conducted by the TUSI site QA staff; however, contrary to the CPSES QA plan, Section 3.0, this item was not documented nor identified in the surveillance report. Section 3.0 entitled, "Site QA Construction Surveillance," states in part, "The results of surveillance activities are to be documented by use of the site surveillance report form." Proper documentation of this problem in accordance with the TUSI QA Procedure would have required its resolution.

The IE inspector identified this matter as an item of noncompliance with Appendix B to 10 CFR 50, Criterion V.

DETAILS II

Accompanying Inspector: *R. B. Rosenberg*

R. B. Rosenberg, Reactor Inspector
Engineering Support Section

Reviewed by: *R. E. Hall*

R. E. Hall, Chief, Engineering Support Section

1. Persons Contacted

a. Texas Utilities Services, Inc. (TUSI)

P. M. Milam, Site QA Supervisor

b. Gibbs & Hill (G&H)

R. V. Fleck, QA Supervisor
J. V. Hawkins, Site QA Representative
J. J. Moorhead, Resident Engineer
D. A. Fellingner, Civil Engineer

c. Brown & Root (B&R)

S. Miller, QC Inspector
R. Crosno, QC Inspector
M. Robinson, QC Inspector
A. McCreary, QC Inspector
R. Best, DDR Supervisor
J. E. Fitzsimons, Document Control Supervisor
G. McGee, Project Civil Engineer
G. Mochel, Engineer

2. Scope of Inspection

The scope of this inspection included a follow-on review and observation of the on-site construction activities related to seismic category 1 concrete placement and quality assurance programs. The inspection included the review of Quality Control records associated with concrete pour number 205-1773-001 of the Unit #2 Safeguards Building and the concrete temperature problem associated with that pour. Also reviewed were document control, records for radial shear bar welding, and current Deficiency and Disposition Reports (DDR's). The status and disposition of previously identified unresolved matters were also reviewed.

3. Unit #2 Safeguards Building Foundation - Pour #205-2773-001

a. Documentation Review

The inspector reviewed the following records associated with concrete pour #205-2773-001:

- Concrete Pour Card, dated June 17, 1976
- *Concrete Placement Checklist, dated June 17, 1976
- Reinforcing Steel, Electrical and Embedded Item Placement Checklist, dated June 17, 1976
- *Design Engineers Pre-Pour Plan, dated June 17, 1976
- Concrete Placement Plan, dated June 17, 1976
- Letter from R. W. Hunt to Brown & Root, Re: Pre-Pour Plan HCP-12614, dated June 17, 1976
- Memo from M. R. McBay to P. Bussolini, Re: Approval of Reinforcing Steel Tolerance Deviations, dated June 17, 1976
- Acceptance Tests for concrete HCP-12671, dated June 17, 1976
- Batch Tickets for Pour #205-2773-001
- Material/Equipment Control History Reports for Aggregate, Type II Cement, and Reinforcing Steel
- Material Test Reports for Cement and Reinforcing Steel
- Monthly Water In-Process Tests for Wells #1 & #2
- In-Process Tests on Aggregate including Moisture, Gradation, Passing #200, and Organic Matter
- Curing Report Form & Checklist-Pour, dated June 18, 1976
- *Concrete Compressive Strengths HCP-13829 thru HCP-13841
- *DDR-C-320, Re: Concrete Temperatures as Placed and Attachments

Documentation was found to be in accordance with G&H Specification 2323-SS-9 and B&R Procedures CP-QCP-2.3, CP-QCP-2.4, CP-QCP-2.6 and CP-QCP-2.15. Those documents marked by an asterisk (*) are germane to high concrete temperatures for the last approximately 90 cubic yards placed, which are discussed below. No discrepancies were identified in this part of the inspection.

b. Completing Pour With Concrete Temperatures In Excess of 70°F

The inspector reviewed the documentation and correspondence relating to the B&R Deficiency and Disposition Report C-320 (DDR-C-320). The attachments to DDR-C-320 required extra concrete cylinders to be cast for the remaining loads placed and extra thermocouples to be embedded in the placement to monitor the heat of hydration. The heat of hydration peaked at about 136°F. Temperatures above 155°F would have been cause for concern.

- * Correspondence between TUSI, G&H and B&R concerning the concrete temperature and ice situation near the end of the pour.

The concrete compressive strength test records indicate only two cylinders broken from batches where the placing temperature was in excess of 70°F. Although, these two cylinders broke at greater than 4000 PSI, there is no evidence of the cylinder strength tests for the other thirteen batches of concrete which possibly exceeded 70°F because they also contained no ice. The B&R QC inspector informed the inspector that TUSI, G&H, B&R and R. W. Hunt representative agreed, during the pour, that only extra thermocouples would be required and not extra cylinders. Records of this agreement were not available to the inspector. This matter will be reviewed further during a subsequent inspection.

4. Document Control

On July 29, 1976, the inspector randomly selected nineteen documents from field locations including B&R Construction Procedures, G&H Specifications, G&H Drawings, and Bethlehem Steel Corp. Drawings. On July 30, 1976, the inspector then verified the up-to-date revisions for the documents with the document control office. G&H drawing GH2323-S1-0620, Rev. 1, which was in the active stick file in the shed in the Auxiliary Building area, was found to have been superseded. The document control office had received notification dated July 30, 1976 that Rev. 1 had been destroyed and replaced by Rev. 2. The inspector returned to the field and reverified that Rev. 1 was still on the drawing stick where originally located. The inspector also found that ICN #2 to B&R Construction Procedure 35-1195-CCP-14, Rev. 0 had been issued but was not with the subject procedure in the field. The inspector also reviewed Site Surveillance Report No. SR-C-108-76, dated July 8, 1976, which identified forty findings concerning document control. These findings are in the process of being closed out.

The inspector's observations relative to the lack of control of drawings has been identified as an infraction, since Criterion VI, 10 CFR 50, requires controls to assure that revisions to drawings are distributed to and used at the location where the prescribed activity is performed.

5. CDR-Unit 1 - Containment Base Mat Coring

The inspector discussed the progress of corrective action relative to the 10 CFR 50.55(e) Report On Unit 1 Containment Mat Evaluation, Rev. 1, with representatives of TUSI, G&H and B&R. The principal area inspected concerned the actions taken to preclude the recurrence of the same problems on Unit 2. Specifically reviewed were: G&H drawing S2-501, Rev. 1; G&H GTN-8311, dated April 22, 1976; and B&R FDCR-249, dated June 14, 1976, which describe improved provisions for access into the wall section to deliver and consolidate the concrete. The inspector was informed by G&H representatives that the Unit 2 base mat would be four pours rather than one as for Unit 1. Provisions for the segregation of the four pours were observed in the Unit 2 assembly.

In addition to the new and revised construction and inspection procedures under preparation, the inspector also identified to TUSI and G&H representative the following data which the inspector desired to review relative to the 50.55(e) Report On Unit 1 Containment Mat Evaluation, Rev. 1, dated July 12, 1976.

a. DDR-C-227

Calculations and/or documents supporting the evaluation of the valve isolation embedments to perform their safety related function after repairs.

b. SR-C-075-76

Calculations and/or documents supporting the evaluation and conclusions D.3.a., and the evaluation of the preventive measures D.5.6 for Unit 2 on the ability of the structure to perform its safety related functions.

c. SR-C-079-76

Information supporting the conclusions of the evaluation contained in Appendix 1 to Law Engineering Testing Company Report, Section 5.0 states, "Areas of category 2 and 3 are numerous in the area investigated. These areas require evaluation by the design engineer."

The inspector requested of TUSI and G&H representatives that the above documents be available for review during a subsequent inspection.

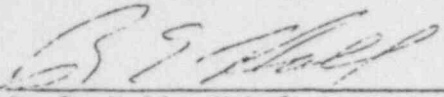
6. Radial Shear Bar Welding

The inspector observed the storage area of the Unit 2 Containment radial shear bar ladders and found them clean, out of the mud, without excessive rust and identified. The inspector identified five welds with different weld-codes. The weld inspection records and welder performance qualification records for the five welds were reviewed. One radiographed weld for four of the welders was identified and the radiographs and reader sheets were reviewed for these welds. Documentation reviewed was consistent with B&R Construction Procedures CP-QCP-8.2 and CP-QCP-8.3.

No discrepancies were identified in this portion of the inspection.

7. Corrective Actions - DDR's

The inspector reviewed thirty two DDR's generated since June 15, 1976. No discrepancies were identified during this part of the inspection.

DETA. IIIAccompanying Inspector: 

R. E. Hall, Chief
Engineering Support Section

1. Persons Contacted

J. V. Hawkins, Site QA Representative, Gibbs & Hill, Inc. (G&H)
M. Jeffers, Project QA Supervisor, Chicago Bridge & Iron (CB&I)

2. Scope of Inspection

This inspection encompassed the Unit 1 containment liner erection progress.

3. Containment Liner Erection

Gibbs & Hill, Inc. (G&H) Specification 2323-SS-14, Rev. 3, dated November 17, 1975, establishes requirements for erection of the containment liner. Liner erection has proceeded to the point that the ninth ring has been placed with no supporting concrete structures. As permitted by the G&H Specification, ring girders are being installed by Chicago Bridge & Iron (CB&I) on the internal surface of alternate rings to maintain rigidity and specified tolerances until the concrete walls have been placed.

Section 8.2 of the G&H Specification establishes tolerances on the diametrical variation and Section 8.9 establishes vertical plumb tolerances. During this inspection, preliminary CB&I construction data for the first seven rings were inspected. No out-of-tolerance data were recorded for either parameter. Optical techniques in use for obtaining data appear to satisfy specification requirements. After installation of penetrations and placement of containment wall concrete, diametrical and plumb measurements will be inspected by CB&I in accordance with specification requirements.

No discrepancies were identified in this part of the inspection.