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June 28, 1984

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U.S. Nuclear Regulatory
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Washington, D.C. 20555

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881 West Outer Road
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Dean, Division of Engineering,
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Oklahoma State University
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Subj: Texas Utilities Electric Company, et al.
(Comanche Peak Steam Electric Station,
Units 1 and 2); Docket Nos. 50-445 and 50-446

Gentlemen:

On April 16, 1984, Applicants transmitted to the Board, in response to a request by the Board Chairman, documentation regarding the disposition of weld deficiencies on a pipe whip restraint which were reported to the NRC in September, 1982, as a potentially reportable deficiency pursuant to 10 C.F.R. §50.55(e). As indicated in the material provided to the Board, Applicants determined, upon engineering evaluation, that the matter was not reportable and so notified the NRC on December 27, 1982. The Board has posed two additional questions regarding this matter. Applicants provide below their response to each question.

The first question posed by the Board is, as follows:

How Applicants persuaded themselves that the failure of QC personnel to detect weld defects in the George Washington Bridge was not a generic QC problem requiring correction.

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As discussed below, Applicants have not suggested that this matter was not considered to have generic implications for their QC program. In fact, Applicants had recognized, in part because of this matter, that improvement in their weld inspections was warranted.

Prior to the identification of the weld deficiencies in question here, Applicants recognized that with respect to at least one vendor there was a need to improve the quality of weld inspections. As has already been addressed in this proceeding (see Applicants' Proposed Findings (February 25, 1983) at 96-101, Applicants had implemented several actions with respect to the inspection of welds on CB&I supplied components. These actions are summarized in the attached letter from Mr. Gary to G.L. Madsen, dated July 19, 1982 (Attachment 1). Subsequently, Applicants also became aware of weld deficiencies in the "George Washington Bridge" (supplied by NPSI) and in certain electrical panels (supplied by Reliance Electric).

In view of these matters, Applicants instituted a program to improve the inspection of welds on vendor-supplied components. Specifically, Applicants retained a consulting firm to assist in on-the-job retraining of source inspectors by, inter alia, accompanying the inspectors on trips to vendor shops when weld inspections were required. This retraining program continued until it included all persons who perform source inspections for TUGCO. Applicants informed the NRC of this program by letter dated December 27, 1982, from R. J. Gary to G. L. Madsen (Attachment 2). Finally, Applicants also undertook additional measures to improve weld inspections by, inter alia, re-emphasizing to all vendor compliance personnel the need for their inspections to be detailed and thorough, and the supplementation of audit teams with certified inspectors, as required. These measures are discussed in Mr. Gary's letter of March 30, 1983, to Mr. Madsen (Attachment 3).

In sum, in response to the identification of deficiencies in welds supplied by various vendors, Applicants implemented several comprehensive measures to improve their source inspections of those welds. Thus, Applicants did recognize the generic implications of their findings concerning vendor-supplied welds and took appropriate corrective measures.

The Board's second question is, as follows:

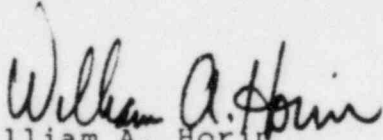
Whether the engineering analysis of the George Washington Bridge assumes that all deficiencies had been found, or whether some assumptions were made about the rate of deficiencies in root and intermediate passes that could not be inspected.

As the information Applicants previously provided the Board demonstrates, Applicants performed a comprehensive conservative evaluation of the subject welds to assess their adequacy. Applicants assessed the significance of all visible weld deficiencies identified in the detailed inspections of the welds. Applicants did not assume any particular "rate of deficiency" for underlying weld passes. However, Applicants also did not take credit for any existing weld material underlying the areas where defects (e.g., incomplete fusion, porosity) were noted, regardless of the depth of the defect. Undersized welds were evaluated with their actual size. Applicants also considered only the effective base metal thickness in their assessment of defects in base metal (e.g., undercut, arc strike, gouging). (See attached Gibbs & Hill Calculation Sheet (No. SSB-125C Set 1, Sh. 167) (Attachment 4).)

Finally, even with the conservative assumptions described above, all stresses were found to be within applicable allowables (see GTT-9322, December 20, 1982, previously provided). Thus, the conservatism inherent in allowable strengths (as compared to ultimate strengths) remain in the welds.

In view of this conservative analysis, plus the fact that the structure (which is outside containment) has no continuous service application and would be subject only to a one-time load (under certain postulated main steam line breaks), both Applicants and the NRC Staff concluded that the matter was not a reportable deficiency and that the weld deficiencies would not adversely affect the design function of the structure. (See NRC I&E Report 83-24/83-15 (August 24, 1983), Appendix at 2 (previously provided)).

Respectfully submitted,


William A. Horin
Counsel for Applicants

Enclosures

TEXAS UTILITIES GENERATING COMPANY

2001 BRYAN TOWER · DALLAS, TEXAS 75201

R. J. GARY
VICE PRESIDENT
AND GENERAL MANAGER

July 19, 1982
TXX-3544

Mr. G. L. Madsen, Chief
Reactor Projects Branch
U.S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
611 Ryan Plaza Drive, Suite 1000
Arlington, TX 76012

Docket Nos. 50-445
50-446

COMANCHE PEAK STEAM ELECTRIC STATION
RESPONSE TO NRC
UNRESOLVED ITEM
INSPECTION REPORT NO. 82-10/82-05
FILE NO: 10130

Dear Mr. Madsen:

As agreed in a telephone conversation on June 28, 1982, between the TUGCO QA Manager and Mr. E. H. Johnson of your staff, we submit this letter which describes our corrective actions with respect to welding inspections at the Chicago Bridge & Iron Company (CB & I). Although the matter in question (as identified in NRC I & E Report 50-445/82-10 50-446/82-05) involves recent allegations regarding pipe whip restraints, this discussion also covers prior corrective action taken with regard to piping moment limiting restraints manufactured at the same facility.

As early as July, 1980, the CPSES QA Program had identified an apparent violation of NDE procedures at Chicago Bridge & Iron Company. The matter was discovered during a routine audit/source inspection by Brown & Root QA at the CB & I Salt Lake City facility and involved moment limiting restraints. The auditor identified some welds on the restraints to have surface conditions unsuitable for proper interpretation of magnetic particle test (MT) results. The NRC investigated the matter (see NRC I & E Report 80-20) and issued a citation for violation of NDE procedures.

All moment limiting restraints received at the jobsite up to the date of I & E Report 80-20 were reinspected, and relevant indications were reworked to achieve full compliance. In addition, our source inspection program at that time began placing more emphasis on detecting weld surface conditions of the type identified by the Brown & Root auditor.

From that time until early 1982, our source inspections at the CB & I Salt Lake City facility continued to identify relevant welding indications on moment limiting restraints and pipe whip restraints. During this time TUGCO management became increasingly concerned that TUGCO inspectors were having to do basic, first-line inspection work that CB & I should have been doing.

Mr. G. L. Madsen, Chief
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July 19, 1982

In March, 1982, upon the recommendation of the TUGCO Vendor Compliance Supervisor, the TUGCO QA Manager authorized a trip to the CB & I facility in Salt Lake City to observe a source inspection and meet with their management. TUGCO was represented by the TUGCO QA Vendor Compliance Supervisor, who met with their plant management. CB & I was told by the TUGCO Supervisor that unless their inspections were made more effective, we would no longer identify individual weld indications to them so that they could be reworked and released at that time. Instead, we would simply reject all welding on an individual restraint upon identifying a relevant indication and thus force their inspectors to thoroughly reinspect the entire assembly until finding the indication themselves.

Further corrective action with regard to CB & I was initiated as a result of discovering some relevant indications on four pipe whip restraints which had been sandblasted after arriving on site. We then directed a reinspection of 52 other restraint assemblies, which had been received on site prior to or subsequent to the four initially inspected. These inspections revealed conditions similar to those on the four restraints, but to a lesser degree. The specific corrective actions were as follows:

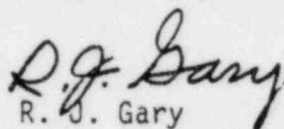
1. On May 5, 1982, the TUGCO QA Manager telephoned the president of CB & I and requested his personal involvement in the matter.
2. As a result of that conversation, a meeting was called at the jobsite on May 7, 1982, with CB & I and CPSES management. At this meeting the following commitments were made:
 - A. A Brown & Root welding specialist would be assigned full-time to the CB & I shop for at least six weeks to monitor welding and NDE. He arrived there on May 10, 1982. He will remain there full-time at least until August 1, 1982, at which time we will determine whether his full-time status can change.
 - B. CB & I committed to sandblast all welds prior to inspection even though this is not required by ASME Section III, Subsection NF, or by the specification.
 - C. CB & I agreed to perform MT on weld areas randomly selected by TUGCO QA inspectors, over and above the 100% MT already done prior to the arrival of the TUGCO personnel.
 - D. CB & I agreed to perform a post-sandblast visual inspection of 100% of the welds prior to TUGCO QA's 100% visual inspection.

The above listed corrective actions have brought about a significant improvement in CB & I's inspection performance. Please note that we have evaluated the welding indications which are a matter of record and have

Mr. G. L. Madsen, Chief
Page 3
July 19, 1982

determined that the matter would have had no significance, assuming they had gone uncorrected. We will continue to monitor this facility. Should you require additional information, please advise.

Very truly yours,


R. J. Gary

RJG:sko

TEXAS UTILITIES GENERATING COMPANY

2001 BRYAN TOWER - DALLAS, TEXAS 75201

R. J. GARY
EXECUTIVE VICE PRESIDENT
AND GENERAL MANAGER

December 27, 1982

Mr. G. L. Madsen, Chief
Reactor Projects Branch 1
U.S. Nuclear Regulatory Commission
Office of Inspection & Enforcement
611 Ryan Plaza Drive, Suite 1000
Arlington, TX 76012

Dear Mr. Madsen:

SUBJECT: Response to SALP Report

This will provide our response to the observations made in the NRC's Systematic Assessment of Licensee Performance (SALP) Board Report of Comanche Peak SteamElectric Station (CPSES) and the subsequent meeting held on December 8, 1982 regarding that report.

Although Section A is titled Plant Operations - Preoperational Testing, NRC inspection activities were directed primarily toward the review of preoperational test procedures and the witnessing of several of these tests. The performance analysis does not refer to activities of the Plant Operations organization.

Of the seventy-nine (79) engineers who are directly involved in preoperational testing, fifty-four (54) of them had nuclear power plant startup experience prior to their assignment to CPSES. A large majority of the remainder had either fossil plant startup experience or military nuclear experience prior to their assignment. All personnel assigned to the startup group who are responsible for directing testing activities meet the education and/or experience requirements specified by the NRC.

The primary basis for all test schedules issued to date have been sequence of test activities required to support other tests. Those systems not having a required sequence were fixed early in the scheduled time frame to place emphasis on construction completion and early identification of engineering and construction problems. All schedules have been reviewed by personnel having actual nuclear plant startup experience on several plants. Prior to issuance, all startup schedules have been coordinated and agreed to with engineering and construction management and scheduling personnel as well as the individuals responsible for performing the necessary engineering and construction activities.

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While the lack of timely production of preoperational test procedures has hampered the test schedule to a minor degree, there is no indication this was caused by lack of actual nuclear plant startup experience.

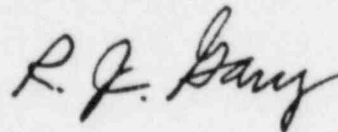
We consider our overall Vendor Compliance (VC) program to be an effective, useful part of the Texas Utilities Generating Company (TUGCO) Quality Assurance (QA) effort. The VC program includes vendor source inspections performed by qualified TUGCO personnel at the vendors' facilities. In performing these inspections TUGCO personnel use checklists which are developed by extracting requirements (weld, dimensional, documentation, etc.) from the specification which have been imposed upon the vendor. During the inspection the TUGCO source inspector verifies the vendor has satisfied the requirements by completing the checklist. He will then release the equipment for shipment as all requirements are met. This program was developed to assure equipment meets specification requirements prior to shipment to CPSES.

While we consider this program to be effective, TUGCO QA management is committed to improvement. One area in which we have recognized a need for improvement is performing inspections of vendor supplied welds. As a result we have retained the services of Reedy, Herbert, Gibbons, & Associates (RHG&A) to assist in an on-the-job retraining program for our source inspectors specifically in this area. RHG&A is a consulting firm consisting of highly qualified individuals considered throughout the industry to be experts in the field of ASME and AWS welding requirements.

As a part of the program RHG&A is accompanying our source inspectors on selected trips when weld inspections are required. These consultants observe the source inspectors as they perform their work for the purpose of determining their overall effectiveness, thoroughness and knowledge of welding code requirements and strengthening those areas that might need improvement. When completed this retraining program will have included all persons who perform source inspections for TUGCO. Final results will be included in a report to the Manager, QA from RHG&A.

This program was first implemented on November 30, 1982 at Reliance Electric with more than satisfactory results. It will continue until the Manager, QA is completely satisfied that all VC personnel are capable of performing weld inspections to the applicable ASME or AWS requirements.

Very truly yours,



RJG:cp

TEXAS UTILITIES GENERATING COMPANY

2001 BRYAN TOWER DALLAS, TEXAS 75201-3050

ATTACHMENT 3

R. J. GARY
EXECUTIVE VICE PRESIDENT
AND GENERAL MANAGER

March 30, 1983
TXX-3650

Mr. G. L. Madsen, Chief
Reactor Project Branch 1
U. S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76012

Docket Nos.: 50-445
50-446

COMANCHE PEAK STEAM ELECTRIC STATION
RESPONSE TO NRC NOTICE OF VIOLATION
INSPECTION REPORT NO. 82-25/13
FILE NO.: 10130

Dear Mr. Madsen:

We have reviewed your letter dated February 28, 1983 on the inspection conducted by Messrs. J. T. Conway, H. W. Roberds, and R. C. Stewart of activities authorized by NRC Construction Permits CPPR-126 and CPPR-127 for Comanche Peak Steam Electric Station Units 1 and 2. We have responded to the findings listed in Appendix A of that letter.

To aid your understanding of our response, we have repeated the requirement and your finding followed by our corrective action. We feel the enclosed information is responsive to the Inspector's finding.

TUGCo management is committed to continually improving our Quality Assurance program and offers the following in response to your concerns regarding the effectiveness of the TUGCo source surveillance program.

Our primary means for evaluating vendor performance is through source inspections and audits. When problem vendors are identified, the TUGCo Vendor Compliance (VC) group intensifies its reinspection of the product which is done after the vendor's inspection has been completed. As always, noncompliances identified are documented and resolved prior to shipment. The VC inspection report includes a vendor rating number (which evaluates vendor performance rather than product). This inspection report is reviewed by TUGCo Quality Assurance Services who take further action when indicated, usually in the form of a special audit. In some instances, TUGCo has conducted management meetings and discussions; assigned project employees to vendor facilities; removed a vendor from the Approved Vendors list; and issued stop work orders.

Subsequent to your inspection, we clarified and re-emphasized to all VC personnel the need for VC inspections to be detailed and thorough. As discussed in our response to the SALP report (R. J. Gary to G. L. Madsen, dated 12/27/82), we are taking steps to improve the weld inspection proficiency of VC personnel. In addition, increased emphasis is being placed on examination of hardware during audits. For selected vendors, we have begun to use certified inspectors in addition to the regular audit team members. We have also initiated the practice of scheduling selected vendor audits and source surveillances concurrently when recurring hardware problems have been identified.

TUGCo is most concerned with ensuring final product quality. Through detailed reinspection of the equipment prior to shipment together with audits which identify and correct hardware as well as programmatic weaknesses, TUGCo is able to control product quality prior to shipment to CPSES.

Very truly yours,



RJG:aq

cc: NRC Region IV - (0 + 1 copy)

Director, Inspection & Enforcement (15 copies)
U. S. Nuclear Regulatory Commission
Washington, DC 20555

APPENDIX A

NOTICE OF VIOLATION

Texas Utilities Generating Company
Comanche Peak Steam Electric Station

Dockets: 50-445/446
Permits: CPPR-126
CPPR-127

Based on the results of an NRC inspection conducted during the period of November 22-24, 1982, and in accordance with the NRC Enforcement Policy (10 CFR Part 2, Appendix C), 47 FR 9987, dated March 9, 1982, the following violations were identified:

A. Certification of Inspectors

10 CFR Part 50, Appendix B, Criterion XVII, states, in part, "Sufficient records shall be maintained The records shall . . . include . . . qualification of personnel"

Section 17.1.17, "Quality Assurance Records" of the QA Program for design and construction contained in the FSAR Amendment 25, dated August 7, 1981, states, in part, ". . . records that are required to be maintained . . . include . . . personnel certification"

Section 3.2 of Procedure CQP-YC-4, "Guidelines for Certifying Vendor Compliance Inspection Personnel," states, "Certifications are valid for three years. The certification expiration date will be stated on the certification."

Contrary to the above, a review of QA training records for eight inspectors revealed the following:

1. The Level III inspector was not recertified until July 13, 1982, following certification to SNT-TC-1A on July 28, 1977.
2. The certification expiration date was missing from the records for all inspectors.

CORRECTIVE ACTION TAKEN AND THE RESULTS ACHIEVED:

The certificate discussed in item A.1 was erroneously issued with a five-year certification period, i.e. an expiration date of July 28, 1982. The latest Level III re-certification was made on July 13, 1982 and expires on July 13, 1985. This is in compliance with current procedure requirements.

In response to A.2, a review was conducted on 23 inspector certification letters. No instances were found where the expiration

date was missing from the inspector's certification records. This review included certification letters for all inspectors.

CORRECTIVE STEPS WHICH WILL BE TAKEN TO AVOID FURTHER VIOLATIONS

A matrix system was initiated and will be maintained to track certification expiration dates. In addition, procedure requirements have been reviewed with appropriate personnel. No preventive action is required for item A.2.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

All corrective actions have been completed.

B. Audits

10 CFR Part 50, Appendix B, Criterion XVIII, states, in part, "The audits shall be performed in accordance with . . . checklists . . . Followup action, including reaudit of deficient areas, shall be taken"

Section 17.1.18, "Audits" of the QA program for design and construction contained in the FSAR, Amendment 29, dated December 21, 1981, states, in part, ". . . TUGCO QA: 3. Provides auditing checklists 8. Requires reauditing of deficient areas"

Section 4.2.1 of ANSI N45.2.12, "Requirements for Auditing Quality Assurance Programs for Nuclear Power Plants, "Draft 3, Revision 0, states, "An individual audit plan describing the audit to be performed shall be developed and documented." Section 4.3.2.1 states, in part, "Checklists . . . shall be used to ensure depth and continuity of audits." Section 5.2 states, in part, "Records shall be generated and retained for all audits. Records shall include . . . audit plans"

Section 19 of ANSI N45.2-1971, "Quality Assurance Program Requirements for Nuclear Power Plants" states, in part, "Deficient areas shall be reaudited until corrections have been accomplished."

Contrary to the above, a review of the QA records for nine audits relating to NPS Industries revealed the following:

1. Audit plans were missing for four audits conducted in October 1978, May 1979, July 1980, and November 1980.
2. Checklists were missing for two audits conducted in October 1978 and May 1979.
3. Two deficiencies identified in an audit conducted in October 1980 were not evaluated for implementation of corrective action during a subsequent audit conducted in November 1981.

CORRECTIVE ACTION TAKEN AND THE RESULTS ACHIEVED:

The records for those audits discussed in B.1 were reviewed to ensure that all appropriate information was available.

The two audits identified in item B.2. were scheduled as a result of problems identified during release inspections. The checklists used for these audits were the inspection reports detailing those specific problems and these were in the audit file. A memo to that effect has been placed in the file.

Audit TNP-10, conducted December 20-21, 1982 included verification of the open items noted in B.3.

CORRECTIVE STEPS WHICH WILL BE TAKEN TO AVOID FURTHER VIOLATIONS

TUGCo procedure DQI-CS-4.5 was revised to require the audit team leader to prepare an audit plan which identifies the previous applicable audits and open items requiring follow-up. The audit plan, along with the checklist is then approved by the Supervisor, QA Audits.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

All corrective actions have been completed.

Gibbs & Hill, Inc. Job No. 2323 Client TWSJ
 Subject PWR SUPT STRUCT - WELD & ASSOCIATED FIELD PROB
 Calculation Number 55B-125C SET 1 Sheet No. 167

Revision	Original Issue	Date	Rev. 2	Date	Rev.	Date	Rev.	Date	Rev.	Date
Checking Method #										
Preparer			SSR	11-20-82						
Checker			AMS	11/20/82						

THE FOLLOWING ARE THE UNACCEPTABLE WELD INDICATIONS IDENTIFIED BY NCR-M-82-01589, G+H UNDERSTANDINGS AND APPROACH TAKEN TO RESOLVE THE PROB.

	WELD INDICATIONS	G+H UNDERSTANDING	G+H APPROACH
1.	UNDERCUT (U.C)	UNDERCUT IN BASE METAL	INVESTIGATION TAKES INTO ACCOUNT ONLY THE EFFECTIVE THICK. OF BASE METAL
2.	BASE METAL DEFECT (BMD)	BASE METAL DEFECT	"
3.	ARC STRIKE	ARC STRIKE IN BASE MET.	"
4.	GOUGING	GOUGING IN BASE METAL	"
5.	UNDERSIZE (U.S)	UNDERSIZING OF WELD	SUBJECT UNDERSIZING TAKEN INTO CONSIDERATION FOR STRESS EVALUATION.
6.	INCOMPLETE FUSION (I.F.)	LACK OF FUSION BET. WELD & BASE METAL	SUBJECT AREA DISCOUNTED FROM STRESS EVALUATION.
7.	COLD LAP (CL)	INADEQUATE FUSION BETWEEN DIFFERENT PASSES OF WELD	SUBJECT LENGTH DISCOUNTED
8.	POROSITY	POROUS WELD	SUBJECT AREA DISCOUNTED FROM STRESS EVALUATION
9.	CRATER	DISCONTINUITY IN WELD	"
10.	SPLATTER	SPLATTER IN WELD	SPLATTER IS NOT DETRIMENTAL TO THE STRENGTH OF THE STRUCTURE
11.	CRACKS	CRACK IN WELD	WILL BE CORRECTED BY FIELD

Checking Method #

1. Line-by-line checking
 2. Alternative Calculation Results compared
 3. Identical Calculation Results compared
 4. Compare inputs and results of computer with corresponding inputs and results of similar codes.

F-166, 7-82