

APPENDIX

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

Report No. 50-498/81-32; 50-499/81-32

Docket No. 50-498; 50-499

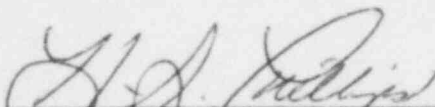
Licensee: Houston Lighting and Power Company
Post Office Box 1700
Houston, Texas 77001

Facility Name: South Texas Project, Units 1 and 2

Inspection at: South Texas Project, Matagorda County, Texas

Inspection Conducted: September and October 1981

Inspector:

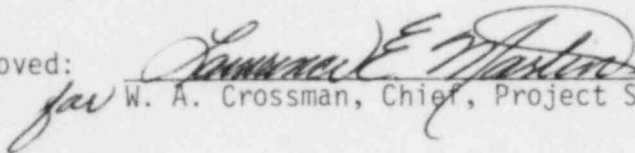


H. S. Phillips, Resident Reactor Inspector
Project Section No. 3

10-30-81

Date

Approved:



W. A. Crossman, Chief, Project Section No. 3

11/12/81

Date

Inspection Summary:

Inspection of September and October 1981 (Report No. 50-498/81-32; 50-499/81-32)

Areas Inspected: Routine announced inspection by the Resident Reactor Inspector (RRI) included independent inspection; follow-up inspection of unresolved items, and Show Cause Order Items; inspection of safety related piping and structural steel welding, calibration laboratory, storage and maintenance of equipment and materials; Bulletin/Circular review. The inspection involved sixty-two inspector-hours by one NRC inspector.

Results: No violations or deviations were identified.

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DETAILS

1. Persons Contacted

Principal Licensee Employees

- *G. W. Oprea, Executive Vice President (VP)
- *R. A. Frazar, Quality Assurance (QA) Manager
- **J. E. Geiger, Project QA Manager
- *J. H. Goldberg, VP Nuclear Engineering & Construction
- **D. R. Keating, Project QA Supervisor
- G. A. Marshall, Senior QA Specialist
- D. I. Teague, QA Specialist

Brown & Root, Inc. (B&R)

- M. D. Muscente, Welding Program Manager
- D. J. Harris, Quality Engineering Manager

The RRI also interviewed other licensee and contractor personnel including members of the engineering and QA/QC staffs.

*Denotes attendance at Houston Management Meeting.

**Denotes attendance at Site Management Meeting.

2. Licensee Action on Show Cause Order, April 30, 1980

A Region IV inspection team has been following up on corrective action proposed in the licensee's Response to the Show Cause Order, dated July 28, 1980 and commitments summarized in HL&P correspondence (ST-HL-AE-533), dated September 18, 1980. The licensee made two hundred and thirty-six commitments in response to the ten Show Cause Order items, described in Section V A. During the past fifteen months, Region IV inspectors have spent approximately 1400 hours following up on the implementation of these commitments which included reviewing hundreds of other sub-items related to the major commitments. The following is the status as of October 31, 1981.

Items 2, 3, 4, 5, 6, 7 and 10 were closed based on the licensee's implementation of commitments which corrected deficiencies or weaknesses described in the subject order.

The following items remain open pending final NRC review after the licensee's implementation and/or corrective action is complete.

<u>Item No.</u>	<u>Commitments Remaining Open</u>	<u>Comment of Inspector</u>
1	A161, M4	A161 can be closed when HBR43 Audit Deficiency Reports are closed. M4 can be closed when audit staffing needs are determined and a basis for adjusting these levels is determined based on Quality History.

<u>Item No.</u>	<u>Commitments Remaining Open</u>	<u>Comment of Inspector</u>
3a	A65, A68, A69, A74	The licensee's management evaluation of these items is not complete. These items can be closed after the evaluation is completed.
8	A142, A143, A147, A148; A149	These commitments are implemented but must be in place for sufficient time for NRC to evaluate.
9	M4 and M42	Same as comment on Item 1

3. Licensee Action on Previously Identified Items

(Closed) Unresolved Item (498/79-22-04): Upgrading of Kelly Klosure "A" to Level "B" Storage Level.

The RRI observed storage conditions in the subject area three or four times during the last six months and conditions appeared to be satisfactory. However, the area has been classified Level "C" and the reactor containment cooler fans had been moved to a warehouse that met Level "B" requirements.

This item is closed.

(Closed) Violation (498/81-01): In Place Storage and Protection of Equipment Inside Reactor Containment and Auxiliary Building (Unit 1) Inadequate.

The RRI observed storage conditions in the subject areas during the last eight months and determined that storage and protection of equipment has improved significantly by either improved covering/sealing or moving the equipment out of the buildings.

Review of objective evidence showed that the licensee had taken the following steps to correct and improve storage and protection of equipment:

- . HL&P Implementation Review (G001) was performed and resulted in three Corrective Action Reports. These conditions were corrected.
- . Access Control requirements were made more stringent in B&R Speed Letter, dated January 26, 1981.
- . HL&P Implementation Review (G007) resulted in issuance of three Field Action Reports relative to deficient inspection, ESMR Cards and untimely responses. These items were closed.
- . B&R Management Action Plan was requested in HL&P Letter ST-HS-BC, 02128, February 12, 1981.
- . HL&P Audit HBR-33 identified additional problems.
- . HL&P/B&R Weekly Housekeeping Walk-Throughs initiated February 25, 1981, showed attention to all kinds of conditions, i.e. equipment, safety, housekeeping, etc.
- . B&R QA Letter ST-BC-HS 03746, March 9, 1981, documented inspection and improved storage conditions.

- . Follow-up on all NRC unresolved items regarding equipment storage, March 10, 1981.
- . Revision of Westinghouse Storage Manual, March 12, 1981.
- . Access control tightened by access list, March 12, 1981.
- . B&R Management Plan submitted to HL&P, March 17, 1981.
- . HL&P required regular maintenance schedule for NSSS Components.
- . Untimely corrective action/disposition of improper storage/protection of equipment from sandblast material investigated by licensee. Pumps disassembled and inspected. Cause of conditions corrected, March 18, 1981.
- . HL&P responded to NRC Notice of Violation, April 13, 1981.
- . HBR-33 Audit Deficiencies corrected May 12, 1981.
- . Storage Maintenance Procedure GCP-35, Rev. 3 revised. Storage now covered by Material Management Procedure SWQ-008, Rev. 0 and Maintenance is covered by GCP-35, Rev. 4, May 15, 1981.
- . HL&P verified corrective action relative to HBR-33, July 7, 1981.
- . B&R increased surveillance on maintenance reduced from 100% to 50% of items inspected July 21, 1981.
- . HL&P Implementation Review (G-023) identified no deficiencies, September 2, 1981.

Licensee responses to NRC Notice of Violation, dated April 13, 1981 and May 28, 1981, did not address the requirements of ANSI N45.2.8 Sections 2.1, 3.1, 3.5 a-d, 4.1 and 4.6. These were subsequently discussed with the licensee and the RRI was assured that these commitments/requirements will be considered in the future when installing equipment.

This item is closed.

(Open) Unresolved Item (498/81-30-01; 499/81-30-01): American Bridge Structural Steel Welding Deficiencies and Reinspection Repair Per B&R Procedure QAP-10.5, Rev. 1.

The RRI identified this item in IE Report 81-30, September 18, 1981, and requested that a Region IV welding inspector inspect the hardware as a part of NRC follow-up inspection. IE Report 81-31, October 5, 1981, documented the inspection of over 500 welds by the RIV welding inspector and only four welds had undersized leg dimensions and one weld had excessive undercut.

The RRI reviewed B&R Procedure QAP-10.5, Rev. 1, and discussed the results of this review with HL&P and B&R personnel on October 21, 1981. The following points were covered:

- . Procedure ST-QAP-10.5, Rev. 1, Reexamination of Vendor Performed Structural Welds, was not necessary. That is, the welds could have been reinspected in accordance with existing project procedures and AWS D1.1 criteria. Welds which did not meet the criteria should have been documented as nonconformances in accordance with B&R Procedure ST-QAP-15.1, Control of Nonconforming Items. The welding performed and inspected by American Bridge from 1977 - 1980 was final inspected and shipped to site. Therefore, any weld which does not conform to AWS D1.1 welding requirements is a nonconformance regardless of the engineering dispositions.

. Since the Procedure ST-QAP-10.5, Rev. 1, was implemented, the RRI reviewed the procedure. Visual inspection is required in accordance with the criteria specified in paragraph 3.7. This paragraph requires that welds be inspected for cracks and lack of fusion; however, the RRI found that the welds had been inspected without removing the paint from weld surfaces. Therefore, the inspection procedure is not adequate.

. Procedure ST-QAP-10.5, Rev. 1, paragraph 3.7, does not give acceptance criteria, nor does it require that defects such as weld craters, weld profile and piping porosity be reported as nonconformances. Nonconformance Procedure ST-QAP-15.1, Rev. 4, requires that nonconformances be documented and the American Bridge welding is not listed as an exception in the procedure.

. The RRI reviewed American Bridge letter, dated February 24, 1981, which summarized the Brown & Root Purchase Order No. 35-1197-8019 (ABD Order K-7025) history. The letter stated that differences in opinions between American Bridge and B&R inspectors occurred when shipments started in April 1977 and an April 29, 1977, meeting resulted in an agreement on those differences in May 1977 through ADR No. 0007. Subsequent shipments of approximately 1,434 tons for the Mechanical Electrical Auxiliary Building were made from August 30, 1977, to July 15, 1980, except for completion of Division 7, a shipment of 330 tons. In February 1981, complaints were sent to American Bridge after reinspection of structural steel welding was accomplished on site. American Bridge stated they were not responsible for the repair costs, "Due to acceptance by Brown & Root after their first inspection and the gross untimeliness of their second inspection at the site."

. B&R interoffice memo, dated January 8, 1981, stated in part, "The deficiencies noted consist of weld conditions which apparently deviate from design drawings, specifications, and/or code (AWS D1.1). A reduction in weld size seems most prevalent."

. B&R memo, dated January 20, 1981, characterized the cause of the problem and stated in part, "The problem of why so many American Bridge welds are being identified as nonconforming at this time: The problem is apparently related to American Bridge's standard commercial practice interpretation of AWS Welding Standards."

. B&R memo, dated February 25, 1981, gave additional causes identified after an audit and stated in part, "Additionally, the following possible causes were identified: (1) An unusually large number of B&R Vendor Surveillance Specialists performing final surveillance. (2) Inadequate vendor in-process and final inspections. (3) Final surveillance being performed while pieces were loaded in bulk on the 'Move Car'. (4) Final surveillance of welds being performed after pieces had been coated." (It must be pointed out that of all

the deficiencies noted at the site, all dispositions to date have been dispositioned 'Use-As-Is'.) This makes any further action by Vendor Surveillance very difficult, as the Vendor feels that ". . . there is nothing wrong with his product."

. B&R Surveillance/Inspection Report, dated July 8, 1981, documented flagrant violations of AWS D1.1 and many items final inspected by American Bridge inspectors "still had violations." Welder and inspector qualifications were questioned. A surveillance dated June 1-4, 1981, documented excessive undercut, weld spatter, rust bloom under coated surfaces, sharp edges, and tack welds not removed.

In view of the above, the RRI determined that the current problems with American Bridge Structural Steel welding are the result of:

. Ineffective or insufficient corrective action relative to the vendor's quality assurance inspection program and the manufacturing processes which date back to April 1977, or before.

. Inadequate or ineffective audit of the vendor's QA/QC program and hardware produced.

. Inadequate or ineffective receiving inspection at the site which allowed nonconforming items to be accepted.

. Procedures developed to reinspect these items were inadequate and the reinspection of items is questionable. The licensee and contractor engineering and quality assurance organizations are currently reviewing this matter to determine what action should be taken.

. The welded beams are very large and the design factors may be conservative to the point that engineering may find that nonconformances are of no structural significance, however, the above conditions show that procedures and certain portions of the quality assurance program and procedures are inadequate.

Ordinarily, this item would be escalated to a violation except that the licensee reported this item as a construction deficiency in accordance with 10 CFR 50.55(e), on January 8, 1981, and reports to the NRC will describe the deficiency, analyze the safety implication and corrective action, and provide the NRC with sufficient information to review the technical evaluation and corrective action. In addition, the licensee is taking corrective action in that beams with undercut and undersized welds are being repaired.

No violations or deviations were identified.

4. Review of Licensee Bulletin/Circular System

In August 1981, the RRI initiated a review of the licensee's system for handling Bulletins and Circulars. Receipt and distribution of Bulletin/Circulars is handled by the HL&P licensing group. HL&P Procedure PEP-13, Rev. 1, describes the licensee's methods for handling IE Bulletins, Circulars and Information Notices. The licensing team leader tracks

responses and the lead project engineer is responsible for Westinghouse action items. Section 5.0 of the procedure describes actions to be taken by other organizations receiving IE Bulletin/Circulars. HL&P comments are provided in accordance with Procedure PEP-05, Performance of Design Review.

The licensing group maintains a log which shows Bulletin number, topic, correspondence to internal organizations, AE/NSSS, and the NRC. IE Bulletin files for 76-01 through 81-03, and IE Circular files 76-01 through 81-12 were reviewed. The following was found:

- . Written responses were within specified time.
- . Written responses included information required.
- . Written responses included adequate corrective action.
- . Licensee management communicates Bulletin/Circular information to site.
- . Information in the response was accurate.
- . Corrective action taken was as described in the licensee's response.

The RRI inspected the Bulletins for 1980 and 1981 to determine if NRC inspectors need to perform follow-up inspection relative to licensee corrective action. The following are the inspection results:

<u>Bulletin No.</u>	<u>NRC Follow-Up Inspection Required</u>	<u>Status</u>
80-03	No - Not applicable to STP (N/A)	Complete
80-05	Yes	Inspect vacuum relief valves prior to plant operation.
79-03A	No - N/A	Complete
80-08	Yes	Review sample of radiographs of flued head weld joints.
80-09	No - N/A	Complete
80-16	No - N/A	Complete
80-18	Yes	Review licensee calculations, modifications, etc., near licensing.
80-19	No - N/A	Complete
80-20	No - N/A	Complete
80-21	No - N/A	Complete

<u>Bulletin No.</u>	<u>NRC Follow-Up Inspection Required</u>	<u>Status</u>
80-23	No - N/A	Complete
81-02	Yes	Verify hardware corrected prior to startup.
81-03	No - N/A	Complete

The items requiring future licensee action will be tracked on the RRI's long-term open item list. NRC inspectors should review corrective action relative to these items.

No violations or deviations were identified.

5. Safety-Related Structural Steel Welding

The RRI observed the reinspection results on several American Bridge beams, K7030-211B4. These beams had been inspected with the paint remaining on the surface. Inspectors had marked undercut and weld profile deficiencies. Some inconsistency between inspectors was noted, in that, weld profile was unacceptable on some but others which appeared to have about the same profile were not marked.

The RRI was unable to measure the profile closely enough with a measuring tape but the licensee will determine if either are defective.

Portable welding ovens in the laydown area were checked to determine if the weld rod was heated.

No violations or deviations were identified.

6. Safety-Related Piping Welding

The RRI observed the completion of a repair weld on component cooling water line cc-1210-WA3. The weld repair was performed using a Diametrics Automatic Welder in accordance with Weld Process Specification, 2029, Rev. 2. The Gas Tungsten Arc Process used 0.045-inch E70S-2 filler material with welding parameters in the 100-240 amp and 8-10 volts ranges. The welder's symbol was A04.

Several portable ovens in the Auxiliary Building were checked to determine if the weld rod was heated.

No violations or deviations were identified.

7. Review of B&R Calibration

The RRI reviewed B&R General Calibration Procedure ICP-3, Rev. 5, which describes the contractor's method of controlling, calibrating, measuring, and testing (M&TE). The procedure was comprehensive and established measures as follows:

- . Described the calibration system.
- . Established measurement standards.
- . Established environmental controls.
- . Established calibration intervals.
- . Established calibration sources.
- . Established records for M&TE.
- . Required calibration labeling.

The RRI inspected the laboratory and found the work areas to be neat, clean and well lighted. An area was designated for segregating damaged, out-of-calibration, and unused equipment. Calibration personnel records were reviewed and current personnel met qualification requirements listed in Appendix A of Procedure ICP-3, Rev. 5. The files also reflected training received.

The system appears to be controlling and assuring calibration of M&TE used at STP. The RRI did draw attention to a couple of typographical errors in the calibration procedure that should be corrected during the next revision.

No violations or deviations were identified.

8. Site Tour

The RRI performed independent inspection during site tours of all storage lay down areas, Kelly Klosure "A," Warehouses C and E. Reactor and Auxiliary, Units 1 and 2, were toured several times during the subject inspection period.

9. Management Meetings

The RRI met with one or more persons identified in paragraph 1 on October 16 and October 30, 1981, to discuss past and present inspection findings and to discuss licensee positions and actions.