

APPENDIX

U. S. NUCLEAR REGULATORY COMMISSION  
REGION IV

Report: 50-498/82-15  
50-499/82-15

Dockets: 50-498; 50-499

Category: A2

Licensee: Houston Lighting and Power Company  
P. O. Box 1700  
Houston, Texas 77001

Facility Name: South Texas Project, Units 1 and 2

Inspection At: South Texas Project, Matagorda County, and Houston, Texas

Inspection Conducted: September 1-30, 1982

Inspectors: *W. M. Hill* 10/29/82  
for W. M. Hill, Senior Resident Inspector Date  
(Details Section A, pars. 1-5 & 7)

*D. P. Tomlinson* 10/29/82  
for D. P. Tomlinson, Reactor Inspector Date  
Engineering Section (Details Section A,  
pars. 1-3 & 7)

*W. G. Hubacek* 10/29/82  
for W. G. Hubacek, STP Coordinator Date  
(Details Section A, pars. 1, 3, 6, & 7)

*D. G. Breaux* 10/29/82  
for D. G. Breaux, Reactor Engineer Date  
Vendor Program Branch (Details Section B)

Approved:

W. A. Crossman  
 W. A. Crossman, Chief  
 Reactor Project Section B

10/29/82  
 Date

J. R. Costello for C. J. Hale  
 C. J. Hale, Chief  
 Reactor System Section, Vendor Program Branch

10/29/82  
 Date

D. M. Hunnicutt  
 D. M. Hunnicutt, Chief  
 Engineering Section

10/29/82  
 Date

### Inspection Summary

Inspection Conducted During the Period of September 1982 (Report 50-498/82-15;  
 50-499/82-15)

Areas Inspected: Construction activities related to the transfer of engineering and management functions from Brown & Root (B&R) to Bechtel Power Corporation (Bechtel) including: Bechtel review of the existing design; site caretaking and maintenance activities; training and indoctrination; certification of quality control personnel; licensee action on previous inspection findings; and emergency cooling water (ECW) system concrete work. The inspection involved 290 inspector-hours by four NRC inspectors.

Results: No violations or deviations were identified.

Details Section A1. Persons Contacted

J. Geiger, Quality Assurance Manager  
 \*H. Walker, Project QA Manager  
 \*D. R. Keating, Project QA General Supervisor  
 \*C. O. Wright, Project QA Supervisor  
 J. W. Williams, Project Site Manager  
 \*I. P. Morrow, Construction Superintendent  
 \*J. L. Baker, Supervising Project Engineer  
 C. Von Nyvenheim, QA Specialist-Civil

Other PersonnelBechtel Power Corporation (Bechtel)

B. R. McCullough, Construction Manager  
 \*J. R. Downs, Deputy Construction Manager  
 W. F. Houston, Project QA Engineer  
 K. Habegger, Welding Superintendent  
 M. E. Kalich, Training Supervisor  
 \*L. Hurst, Project QA Manager

Ebasco Services, Inc. (Ebasco)

\*J. Crnich, Construction Manager  
 \*J. Thompson, Site Manager  
 \*C. L. Hawn, Quality Program Site Manager  
 R. Cummings, QA Site Supervisor  
 R. P. Grippardi, QC Site Supervisor  
 F. Miller, Welding Construction Superintendent  
 J. W. Sirles, Training Superintendent

\*Denotes those individuals attending one or more of the management meetings held during September 1982.

2. Licensee Action on Previous Inspection Findings

(Closed) Violation (8133-01): Failure to Record As-Received Data at Calibration Lab. An NRC inspector previously noted that the "as-received" data for measuring and test equipment returned to the calibration lab was not being recorded as required by Procedure A040KPICP-3, Revision 5. According to this B&R procedure any item returned to the calibration lab and found to be damaged to the extent that its accuracy was affected would have a "deficient controlled measuring and test equipment evaluation report" initiated stating the actual out-of-tolerance readings. Houston Power and Light Company (HL&P) quality assurance personnel conducted an audit of the calibration lab records and identified all equipment returned

and found to be defective. These discrepancies were documented on HL&P Corrective Action Report HM-44 and an evaluation was performed to assure that a properly calibrated functional equipment was used for all measurements. Calibration lab personnel were instructed to record first run data and to issue deficient equipment reports for any measurement and test instruments found to be defective. Activities associated with the calibration of measurement and test equipment will be audited and surveillances performed by HL&P, Ebasco, and Bechtel.

This item is closed.

(Closed) Violation (8201-01): Control of Welding Materials. An NRC inspector previously noted that open containers of bare weld filler material had been returned to the warehouse from various rod issue stations. Some of the rods in these containers had lost the flag-tag identification applied to each prior to packaging. To eliminate the possibility of unidentified material being used, all open containers have been removed from the warehouse and transferred to the welders training center to be used for practice welding only. Ebasco Procedure CSP-88 for "Weld Filler Material Control" now requires that no container be opened before it is transferred to the rod issue stations. At the time these containers are opened, a second method of identification shall be applied in the form of color-coded paint for each material as specified in the above procedure. The NRC inspector toured the only rod issue station presently active and verified that all filler material was segregated by log and type and that each rod was end-painted with the appropriate color.

This item is closed.

(Closed) Unresolved Item (8130-01): Deficiencies on American Bridge Structural Steel Received Onsite. This item has been discussed previously in NRC Inspection Reports 81-31, 81-34, and 82-08. An extensive engineering analysis of the American Bridge structural steel welds was conducted by B&R engineering organizations and the field quality control group. The data generated during the reexamination effort was statistically analyzed by Battelle Columbus Laboratories (BCL) who concluded that the B&R reexamination and evaluation of these welds was correct in approach and methodology. An additional review was conducted by Roy B. McCauley Associates to assure conservatism and soundness of approach. BCL and Roy B. McCauley Associates concurred with the B&R evaluations.

B&R Final Report 1A890SR181, for the "Reexamination and Evaluation of Category 1 Safety-Related AWS Structural Steel Welds Made Prior to April 11, 1980," was issued on July 30, 1982. The conclusion drawn in this report is that the accessible American Welding Society (AWS) welds exhibit strength-related deficiencies in such limited number and severity as to be considered negligible. The visual and dimensional examinations performed by the NRC inspector, as documented in the above reports, agree with this conclusion.

This item is closed.

(Closed) Unresolved Item (8136-01): Statistical Engineering Analysis of Inaccessible Welds. BCL tabulated and analyzed inaccessible embeds and structural weld joints in accordance with the AWS Code applying worst case postulated undersize and undercut conditions derived from a statistical sample. The statistical sample was gathered from data collected during the reexamination and repair program conducted on accessible AWS welds of similar configurations. All pertinent information and details regarding the configurations, sample sizes, tests performed, and the results obtained are contained in the B&R "Reexamination and Evaluation of Category I Safety-Related AWS Structural Steel Welds Made Prior to April 11, 1980," final report, dated July 30, 1982. The conclusions reached by B&R, BCL, and Roy B. McCauley Associates agree that all types and sizes of inaccessible welds were found to be fracture-safe. The NRC inspector reviewed this final report and agrees that the B&R application of 1/16-inch undercut full length in fracture analysis, and 3/32-inch undersize for the full length of inaccessible weld portions in strength of materials analysis is highly conservative.

This item is closed.

(Closed) Unresolved Item (8203-02): Staffing of QA Supervisor (Mech/NDE). The duties of the quality engineering project QA supervisor (mechanical/NDE) were being performed by a member of the licensee's staff on a temporary basis (acting). This position has been filled with an employee on a permanent basis. This individual has had 9 years of experience with quality assurance in the nuclear engineering field and has a bachelor of science degree in mechanical engineering. The NRC inspector had no further questions regarding the qualifications of the individual selected for this position.

This item is closed.

(Closed) Unresolved Item (8213-01): Substitution of Concrete for Compacted Backfill.

(Closed) Unresolved Item (8213-02): QA Requirements for Concrete Substitution. Based on a discussion with NRC personnel, the NRC inspector determined that use of concrete as a substitute for compacted backfill in the mudmat and bedding beneath the essential cooling water (ECW) piping constitutes an upgrade in the materials used for construction. No further engineering evaluation was necessary. Additionally, the concrete QA requirements given on Drawing SY57-0-Y-10001 (Revision 0) were adequate for construction materials used in lieu of compacted backfill.

These items are closed.

### 3. Site Tours

Routine tours of the site were conducted by the NRC inspectors to observe housekeeping activities; general cleanliness; protection and preservation of material and equipment, personnel access control; and plant status. Areas observed included:

#### a. Units 1 and 2

Reactor containment buildings, mechanical-electrical auxiliary buildings, fuel handling buildings, and diesel generator buildings.

#### b. Site

Reservoir, essential cooling pond, and storage areas, including the warehouses, laydown areas, and the welding fabrication shop.

With regard to the above areas, the NRC inspector confirmed the following:

- . Safety-related and storage areas were free from accumulations of trash, refuse, and debris.
- . Work areas were clean and orderly.
- . Tools, equipment, and material were returned to their proper storage locations when no longer in use.

No violations or deviations were identified.

### 4. Storage and Maintenance

The NRC inspector observed activities in several warehouses and other designated storage areas with particular attention paid to the following:

- a. Equipment in various storage areas was segregated and classified as Levels A through D to provide appropriate storage and environmental control for various types of equipment.
- b. Storage areas were not being used to store food, drink, or salt.
- c. An active program was in effect to control rodents and small animals.
- d. Racks, crates, and cribbing were carrying the full weight without component distortion.
- e. All items were labeled and stored in a manner that allowed access for inspection.
- f. Fire protection systems and equipment were available for use.

- g. Sufficient dunnage was available to protect materials and components in storage.
- h. Canvas or plastic covering was available for weather protection, as required.
- i. Protective covers and seals were properly attached.
- j. Personnel access to the storage locations was adequately controlled.

No violations or deviations were identified.

5. ECW Concrete Work

The NRC inspector observed the placement of Concrete 1-EW-M001 and M002 in the ECW trench. During placement, the inspector verified the following:

- a. Specific tests of the concrete were performed.
- b. Proper use of adequate conveying and placing equipment.
- c. Adequate concrete consolidation equipment and technique of operation.

The NRC inspector reviewed the following records and reports for these two placements:

- a. Concrete Preplacement Inspection Report (QCP-10.2)
- b. Quality Control Concrete Placement Release (QCP-10.2)
- c. Construction Concrete Preplacement Release (QCP-10.2)
- d. Concrete and Grout Order/Method Form (QCP-10.2)
- e. Concrete Placement Inspection Report (QCP-10.3)
- f. Concrete Placement Control Record (QCP-10.3)
- g. Post Placement Inspection Report (QCP-10.4)
- h. Concrete Curing Inspection Report (QCP-10.4)
- i. Concrete Batch Tickets (QCP-10.2)

These records were "in process" and had not received final QA/QC review. The NRC inspector reviewed these records for accuracy, completeness, and satisfactory completion of quality control tests. The NRC inspector had no further questions regarding concrete operations or quality assurance records.

## 6. Personnel Certification and Training

### a. Ebasco

The NRC inspector reviewed personnel qualification files of Ebasco quality control personnel to ascertain whether they were qualified in accordance with Ebasco Procedure QCP-2.1, "Indoctrination Training and Qualification of Quality Control Personnel," Revision 1. Qualification and certification records of 22 individuals were reviewed, including personnel certified in the following areas: receiving, storage and maintenance, housekeeping, welding, weld-filler material control, mechanical, concrete, soils, and calibration. Certifications of the 22 individuals appeared to meet the requirements of Ebasco Procedure QCP-2.1.

During discussions with the Ebasco training superintendent, the NRC inspector was informed that training of Ebasco construction personnel has been conducted in the following areas: QA and construction orientation, welding of aluminum-bronze material, coatings, concrete placement and vibration, and weld filler material control. Training of personnel in the use of quality related procedures has also been conducted and was being tracked by means of a computerized system. Training was in the planning stage for other areas, including cadwelding, welding of stainless and carbon steel materials, and supervisory programs. The NRC inspector was informed that copies of craft training records are maintained by Ebasco, but Bechtel maintains the official records.

The NRC inspector observed that Ebasco manual "Training, Qualification, and Certification of Quality Assurance/Quality Control Personnel," Revision 0, dated July 15, 1982, has been approved by the Ebasco, New York office. Thus, a previous licensee audit finding regarding the status of the manual has been addressed (NRC Inspection Report 82-11).

### b. Bechtel

The Bechtel indoctrination and training program is described in Bechtel Procedure WPP/QCI 11.0 "Indoctrination and Training of Site Personnel," Revision 2, dated August 19, 1982. Responsibility for management of the training program has been delegated by the construction manager to the training supervisor who directs the training department. Training department personnel monitor site training and are responsible for daily training activities as well as maintenance of site training records and issuance of training status information. The Bechtel Training Department is the repository for training records of all site organizations.

The NRC inspector reviewed a sample of documents maintained by the training department including:



- . Bechtel Training Plan, dated April 16, 1982
- . Ebasco Training Plan, dated July 26, 1982
- . Lesson Plan for Concrete Vibration and Placement Training
- . Training Roster for Concrete Vibration and Placement Training Conducted on July 17, 1982
- . Individual Employer Training Records for Three Bechtel and Two Ebasco Employees
- . Computer Printouts Documenting Procedure Reading Assignments

The NRC inspector was informed that training plans for Pittsburgh Testing Laboratory and Champion were still being developed. All site contractors are required to submit training plans to the Bechtel Training Department.

c. Licensee Audits

The NRC inspector reviewed licensee audits of the Bechtel and Ebasco indoctrination and training programs including the following:

- . D02-201, Bechtel-Indoctrination and Training of Personnel (Houston office) Conducted May 25-27, 1982
- . G01-201, Bechtel-Quality Assurance Overview (Site) Conducted May 19-21, 1982
- . G14-201, Ebasco-Qualification and Training Activities, Conducted July 28-30, 1982

The above audits did not identify any significant problems in the Bechtel or Ebasco indoctrination and training programs.

No violations or deviations were identified during this portion of the inspection.

7. Management Meetings

Meetings were held periodically with licensee management personnel during the course of this inspection to discuss inspection scope and findings.

Details Section B

This section of the report will detail NRC activities with respect to surveillance/inspection of the Bechtel/B&R transition process. To assess the overall transition program and to keep track of exact status of the Bechtel review and assessment of the existing B&R engineering design and associated data, a NRC Region IV inspector was placed on a full time basis at the A/E facility (Bechtel, Houston). For background information on transition activities prior to this report, refer to the details section of previous monthly reports.

Phase A of the Bechtel/B&R transition process is the review and assessment of the South Texas Project Design. This task has been broken down to discretely defined systems and are defined as work packages. As the initial Bechtel review and assessment of a certain work package is completed, a draft final report is sent for their review and comment. The HL&P comments are then incorporated into the generation of the work package final reports. When all of the final reports have been completed for the designated work packages, Phase A of the transition will be completed. Some Phase B activities are scheduled to commence prior to the entire completion of Phase A of the transition. The following is a status of draft and final work package review reports that have been issued since the previous monthly NRC report:

*EC177	*EC172	*EC173	*EM500
*EM571	*EM505	*EM407	*EM563
*EM566	*EN613	*EM508	*EM571
EM570	*EM451	*EC157	*EM413
*EM502	*EM453	*EC176	EC135
*EC138	*EM522	*EE223	EC102
EC103	EC181	EC105	
EM404	EM554		
EP701	EP708		

\*Final report sent to HL&P.

As of October 8, 1982, the NRC Region IV inspector that had been placed in the Bechtel, Houston AE facility to monitor the transition activities, has completed the objectives of this assignment. The final coordinated task was to complete the NRC review and assessment of Bechtel's resolution to the Quadrex Report concerns.

