

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

REGION IV

Report No. 50-498/78-17; 50-499/78-17

Docket No. 50-498; 50-499

Category A2

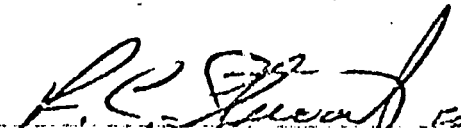
Licensee: Houston Lighting & Power Company
Post Office Box 1700
Houston, Texas 77001

Facility Name: South Texas Project, Units 1 & 2

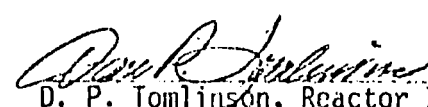
Inspection at: South Texas Project, Matagorda County, Texas

Inspection conducted: December 5-8, 1978

Inspectors:

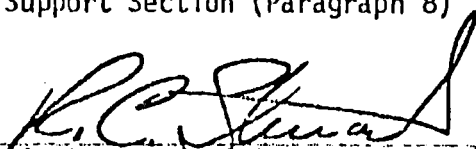

W. G. Hubacek, Reactor Inspector, Projects Section
(Paragraphs 1, 2, 3, 4, 5, 6, 7 & 9)

12/20/78
Date

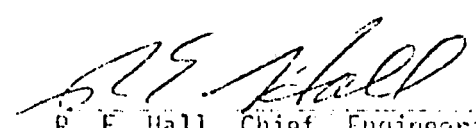

D. P. Tomlinson, Reactor Inspector, Engineering
Support Section (Paragraph 8)

12-20-78
Date

Approved:


W. A. Crossman, Chief, Projects Section

12/20/78
Date


R. E. Hall, Chief, Engineering Support Section

12/20/78
Date

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Inspection Summary:

Inspection on December 5-8, 1978 (Report No. 50-498/78-17; 50-499/78-17)
Areas Inspected: Routine, unannounced inspection of construction activities to include review of implementing procedures and records related to welding of safety related piping for Unit 1; observation of work related to concrete placement for Unit 1; review of licensee organization changes; review of reported 50.55(e) items; and review of previous inspection findings. The inspection involved forty-eight inspector-hours by two NRC inspectors.
Results: Of the five areas inspected, one apparent deviation from PSAR commitments was identified in one area (deviation - reporting of Cadwelder qualification inspection and test results by Level I inspectors - paragraph 6).

DETAILS

1. Persons Contacted

Principal Licensee Employees

R. A. Frazar, QA Manager
W. H. Phillips, Projects QA Manager
*I. R. Alford, Site Manager
*T. D. Stanley, Project QA Supervisor
*L. D. Wilson, Site QA Supervisor
*D. G. Long, Lead Engineer
*T. J. Jordan, Lead Engineer
*H. H. Smith, Plant QA Supervisor
M. W. Johnson, Senior Engineer
D. C. Douglas, QA Specialist

Other Personnel

*C. W. Vincent, Project QA Manager, Brown & Root (B&R)
*S. A. Rasnick, Construction Chief Engineer, B&R
T. E. McNair, Quality Engineer, B&R
T. Morse, Weld Technician Supervisor
J. B. Cleere, Training Coordinator, B&R

The IE inspectors also interviewed other licensee and contractor employees including members of the QA/QC and engineering staffs.

*denotes those attending the exit interview.

2. Licensee Action on Previous Inspection Findings

(Closed) Unresolved Item (50-498/78-03-1; 50-499/78-03-1): Ultra-sonic Testing of Welds. Loading conditions used in the Westinghouse Fracture Analysis for steam generator and reactor coolant pump supports have been clarified by the licensee. It was determined that the critical tension load of the faulted condition in question was obtained by combining the SSE loads and LOCA loads. This matter is considered closed.

(Closed) Infraction (50-498/78-15-A; 50-499/78-15-A): Failure to Follow Cadweld Procedure. The IE inspector reviewed licensee actions taken in response to this finding including the following:

- a. Training related to Cadweld procedure requirements was provided to Cadwelders and QA inspectors.

- b. Procedure CCP-11, "Reinforcing Steel Mechanical Splicing (Cadwelds) was revised to permit omission of parts of the Cadweld apparatus where space limitations exist provided that the techniques used produce splices that meet visual inspection requirements. This procedure revision is supported by a letter from Erico Products, Inc., dated September 18, 1978, which is attached to the procedure.
- c. A total of 1247 Cadweld splices were visually inspected by B&R and licensee personnel. One Cadweld splice (56H31) failed to meet visual inspection acceptance criteria for allowable void and was removed and replaced.
- d. Twenty Cadweld splices produced by second shift Cadwelders, including splices 54V47 and 54V49, were cut out and pull-tested. All twenty splices met the pull-test acceptance criteria.
- e. Procedure CCP-11 was revised to permit the use of a torch, flint gun or other safe or appropriate means to ignite filler metal powder.
- f. Additional B&R QA inspectors have been assigned to perform surveillance of Cadweld splicing activities.
- g. The licensee has implemented increased surveillance of Cadweld splicing activities.

This matter is considered resolved.

(Closed) Infraction (50-498/78-15-B; 50-499/78-15-B): Failure to Provide Specified In-Process Inspection. Procedure CCP-11 has been revised to require that inspection and surveillance of Cadweld splicing activities be provided on each shift when Cadwelding is performed. Review of records for the period September 18, 1978 to December 5, 1978 revealed that Brown & Root inspection personnel and licensee surveillance personnel were present on the second shift. The IE inspectors observed that surveillance and inspection personnel were present during Cadweld splicing activities.

This matter is considered resolved.

3. Site Tour

The IE inspectors walked through various areas of the site to observe construction activities in progress and to inspect housekeeping and equipment storage.

No items of noncompliance or deviations were identified.

4. Organizational Changes

Effective November 1, 1978, Houston Lighting & Power Company announced the appointment of the Manager, South Texas Project who reports directly to the Vice President, Power Plant Construction and Technical Services. The Manager, South Texas Project has overall responsibility for the engineering, design, material and schedule control, construction, startup and resolution of technical and administrative issues related to the project as well as coordinator between Brown & Root and Houston Lighting & Power Company project management personnel.

The previous Power Plant Engineering & Construction Department organization has been changed and is now the Generation Engineering Department. The Generation Engineering Department no longer has a construction division or responsibility for South Texas Project construction management.

No items of noncompliance or deviations were identified.

5. Review of Items Reported Under 50.55(e)

a. Nonconforming Backfill Material

The IE inspector reviewed correspondence from Woodward-Clyde Consultants (WCC) dated November 3, 1978, discussing their evaluation of contaminated backfill in the Mechanical-Electrical Auxiliary Building area of Unit 2. Fifteen borings were drilled for the purpose of determining the extent of the contaminated backfill. Eight of the borings showed evidence of contaminated material from a construction ramp which was inadvertently left in the area. The contaminated backfill was encountered in thicknesses ranging from 1/4 to 4 ft. Two additional borings were drilled adjacent to previously drilled borings for the purpose of obtaining undisturbed samples. WCC's initial conclusion was that the compressibility of the contaminated backfill is very small. The final conclusion, as to the acceptability of the contaminated backfill, is dependent on the outcome of consolidation tests on the undisturbed samples.

This item will be reviewed during future IE inspections.

b. Structural Steel Design Inadequacies

The IE inspector was informed by a licensee representative that their civil engineering department has performed selective reviews of B&R concrete and structural steel design. No apparent problems have been identified with concrete design; however, discrepancies have been found in structural steel design. It was stated that procedures and documentation of design and design reviews appeared to be in order and that QA audits had failed to identify discrepancies; however, it appeared to the licensee that implementation of B&R design and design review procedures was faulty.

The licensee plans to make wide ranging reviews of all B&R design activities to determine if areas other than structural steel design have been affected.

This matter will be reviewed during future IE inspections.

6. Review of Cadweld Records

The IE inspector reviewed records related to Cadweld splicing to ascertain whether they were prepared and maintained in accordance with CCP-11 requirements and PSAR commitments. Records reviewed included "Cadwelder Qualification Reports" for Cadwelders No. 42, 43, 47, 48, 49, 50 and 51, which were prepared in August and October 1978. The IE inspector observed that the above reports document qualification tests which were witnessed and reported by certified Level I Cadweld inspectors.

The IE inspector pointed out that reporting of inspection and test results by a Level I inspector was contrary to requirements contained in the Proposed Standard Code for Concrete Reactor Vessels and Containments (ASME-ACI-359 document) which the licensee committed to in Section 3.8.1.2.4 of the STP PSAR. Article VII-4100 of the ASME-ACI-359 document states that Level II is the minimum level of capability permitted for reporting of inspection and test results.

7. Observation of Concrete Placement

The IE inspector observed the beginning of placement CSI-W15A consisting of approximately 140 cubic yards of mix design A1320 concrete. Concrete was conveyed by pump to the placement which was at the 15th lift of the Unit 1 containment wall. The IE inspector observed that

tests of samples taken from the first load delivered (batch ticket 23573) indicated the slump was 4-1/2 inches and air content was 4.8% which was within the limits in procedure CCP-4, "Concrete Placing and Finishing." Concrete was taken from the initial load for molding of compression test cylinders.

The IE inspector was informed that Field Request for Engineering Action No. 1-C-1030-3 was issued December 1, 1978, which allowed the field to bundle shear ties horizontally around the polar crane brackets to facilitate concrete placement and vibration.

No items of noncompliance or deviations were identified.

8. Review of Quality Assurance Implementing Procedures and Quality Records for Safety Related Piping

The IE inspector reviewed records for two welded joints on each of five safety related piping systems to ascertain whether these records met the established procedures and reflect work accomplishment consistent with NRC requirements and SAR commitments. Records of the following welded joints were selected for this inspection:

Essential Cooling Water System

EC-1102-WT-0002 ES-1202-WT-0003

Auxiliary Feed Water System

AF-1003-0005 AF-1001-0005

Safety Injection System

SI-1335-DB-0005 SI-1143-UB-0002

Spent Fuel Pool Cooling and Clean-Up System

FC-1201-UB-0003 FC-1101-UB-0003

Reactor Containment Cooling System

RC-1043-BB-0002 RC-1043-BB-0003

Actual viewing of these welded joints was not possible as they had been placed underground or embedded in concrete prior to this inspection. Three of the ten piping joints checked had been found defective and had been repaired. The ten original welds and the repairs had been made in accordance with Brown & Root approved Weld Procedure Specifications (WPS):

52.02-791 (Rev. 3)
52.02-716 (Rev. 3)

52.02-715 (Rev. 4)
52.02-626 (Rev. 4)

Personnel qualifications for the eight welders and six inspectors involved in making and inspecting these welds were also reviewed for adequacy and completeness and to assure that all qualifications and vision tests were current.

Records of weld material control were reviewed covering receipt verification, storage of material, pre-issue and post-issue control and disposition of unused materials. Two material storage and distribution sites (MDS-1 and the welder qualification and training center) were visited and observations made of the material issue and control system in operation. Calibration was also checked for all storage ovens, rebake oven, portable weld rod heaters and thermometers in these two storage and issue areas. In the areas inspected, no discrepancies with the requirements of SAR, Section 17 and Regulatory Guide 1.88 were noted.

No items of noncompliance or deviations were identified.

9. Exit Interview

The IE inspectors met with licensee representatives (denoted in paragraph 1) at the conclusion of the inspection on December 8, 1978. The IE inspectors summarized the purpose and the scope of the inspection and the findings. A licensee representative acknowledged the statements of the IE inspector concerning the deviation from commitments (paragraph 6).