

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

REGION IV

Report No. 50-458/79-05

Docket No. 50-458

Category A2

Licensee: Gulf States Utilities  
Post Office Box 2951  
Beaumont, Texas 77704

Facility Name: River Bend Station, Unit No. 1

Inspection at: River Bend Site, St. Francisville, West Feliciana  
Parish, Louisiana

Inspection conducted: October 29 - November 1, 1979

Inspector:

C. R. Oberg  
C. R. Oberg, Reactor Inspector, Projects Section

12/17/79  
Date

Approved:

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

12/17/79  
Date

Inspection Summary

Inspection on October 29 - November 1, 1979 (Report No. 50-458/79-05)

Areas Inspected: Routine, announced inspection of (1) preparations for placement of safety-related concrete; (2) licensee action on previously identified inspection findings; and (3) reporting of construction deficiencies. The inspection involved twenty-five inspector-hours by one NRC inspector on site.

Results: Of the three areas inspected, no apparent items of noncompliance were identified in one area; two apparent items of noncompliance were identified in each of the remaining areas (infraction - failure to provide required information in a petrographic report - paragraph 8 and infraction - failure to provide timely notification of a construction deficiency - paragraph 4).

1952 309

8002120080

## DETAILS

### 1. Persons Contacted

#### Principal Licensee Employees

- \*T. L. Crouse, Director, Quality Assurance
- \*J. E. Wimberley, Superintendent, Site Construction
- \*G. T. Warner, QA Consultant
- \*R. B. Stafford, Supervisor, Quality Systems
- \*J. W. Leauines, Assistant Project Engineer

#### Other Personnel

- W. I. Clifford, Resident Manager, S&W
- P. Pelengaris, FQC Inspector, S&W
- L. Worley, FQC Civil Engineer, S&W
- R. L. Spence, Superintendent FQC, S&W
- \*C. D. Lundin, Project QA Manager, S&W
- \*K. S. Jadeja, Head Site Engineering Office, S&W

The IE inspector also talked with and interviewed other licensee employees and contractor personnel including members of the QA/QC and engineering staffs.

\*Denotes those attending the exit interview.

### 2. Licensee Action on Previous Inspection Findings

(Open) Unresolved Item (50-458/79-02): Construction Deficiency - Breakdown in Quality Assurance Program for Reinforcing Steel. Approximately 90% of the nonconforming rebar has been marked or shipped off the site. This item remains unresolved until all reject steel has been marked or removed from the site area.

### 3. Site Tour

The IE inspector walked through the various construction areas to observe the general progress of construction activities. The following items were noted and discussed with the licensee representatives:

- a. condition of safety-related drawings at control building construction "gang box"
- b. status of nonconforming rebar (Construction Deficiency)

The licensee took immediate action to correct the condition of the drawings which had been found torn and thus difficult to identify. See paragraph 2 for status of nonconforming rebar.

No items of noncompliance or deviations were identified.

1952 310

4. Structural Concrete (Containment)

The IE inspector was informed on October 29, 1979, by the licensee that tests on concrete materials conducted by Southwestern Laboratories (under subcontract to Delta Testing and Inspection) had been rejected. As a result, new tests had been conducted by Pittsburgh Testing Laboratory (PTL). Preliminary results of these tests indicated unsatisfactory aggregates, cement, and water. As a result, placement of safety-related concrete had been halted on the site by the constructor on a Nonconformance and Disposition Report (N&D). However, no "stop-work order" had been issued by the constructor or licensee.

The IE inspector reviewed an audit of Southwestern Laboratories by Stone and Webster conducted on September 25-27, 1979. GSU participated in the audit. The report concluded that:

- a. The requirements of the Southwestern Laboratories (Fort Worth) were not satisfactorily implemented and affected work performance.
- b. An audit of the Fort Worth reports and observation of shop conditions did not provide the confidence that work performed at the Fort Worth facility satisfied technical specification requirements.

The audit identified specific areas which failed to meet the standards for a qualified test laboratory.

The following additional documents were reviewed:

- a. Delta Testing and Inspection, Inc. letter to Stone and Webster, dated June 12, 1979. This letter transmitted test reports of Southwestern Laboratories in connection with: (1) Petrographic Analysis of Aggregates - File No. 1799800, June 6, 1979; (2) Potential Alkali Reactivity of Cement, ASTM C295-65, - File No. 1799800, June 8, 1979; and (3) Test of Type II, Low Alkali, Low Heat Portland Cement, ASTM C150-73a, - File No. 1799800, June 6, 1979.
- b. Delta Testing and Inspection, Inc. letter to Stone and Webster dated May 21, 1979. This letter transmitted Southwestern Laboratories report on Potential Reactivity of Aggregates, Chemical Method, ASTM C289 - File No. 2-1799-01, April 30, 1979.
- c. Delta Testing and Inspection, Inc. letter to Stone and Webster, dated July 9, 1979. This letter transmitted Southwestern Laboratories report (final report) on Test of Type II, Low Alkali, Low Heat Portland Cement, ASTM C150-73a (standard specification for Portland Cement) File No. 1799800, dated June 6 & 14, 1979, and July 2, 1979.

1952 511

d. Pittsburgh Testing Laboratory Report on:

- (1) River Bend Water from "Old Well No. 1"<sup>1/</sup> October 23, 1979
- (2) River Bend Water from "New Well No. 2"<sup>1/</sup> October 23, 1979
- (3) Potential Alkali Reactivity (ASTM C289) October 17, 1979 - Sand
- (4) Potential Alkali Reactivity (ASTM C289) October 17, 1979 - No. 57 Course Aggregate
- (5) Cement - (ASTM C150-78) October 22, 1979, Heat of Hydration

e. Stone and Webster Reports:

- (1) Nonconformance and Disposition Reports;
  - (a) No. 9132 Off Site Water Tests
  - (b) No. 9101A Tests Conducted by Southwestern Laboratories
- (2) Engineering and Design Coordination Report No. P-5-229 - Delta Testing and Inspection - Testing for Reactivity. (December 11, 1978).

The licensee representatives were informed that the failure of the concrete materials to pass the specification requirements was a reportable construction deficiency under 10 CFR 50.55(e). Failure to report the event within 24 hours is a violation of 10 CFR 50.55(e)(2). The licensee representatives committed to submit a written report on the event within the 30 day period.

Subsequent to the inspection, on November 2, 1979, the GSU Director of Quality Assurance issued a stop-work order to cease all Category I concrete placements. On November 6, 1979, an "Immediate Action Letter" was issued from the Director of Region IV to Gulf States Utilities concerning irregularities in the qualification testing of concrete ingredients by the Southwestern Laboratories (Fort Worth facilities). The activities described in the letter will be reviewed in a subsequent inspection.

5. Reporting of 10 CFR 50.55(e) Construction Deficiencies

The IE inspector discussed the reporting of construction deficiencies with site management and QA personnel. This was also discussed with

<sup>1/</sup>Compressive Strength at 7 and 28 days - Distilled water vs. Test Water and Chemical Analysis

1952 312

corporate management personnel (See Inspection Report 50-458/79-07). Other site related events were reviewed for reporting as required by 10 CFR 50.55(e). This included:

a. Cadweld RP-517B

The report on this deficiency (N&D NO. 9130) indicated that a Cadweld was found to be "plugged" with No. 9 tie wire after acceptance by QC. Corrective action included a review of all Cadwelds made by the Cadwelder who plugged the defective Cadweld. The IE inspector indicated that this event should have been identified as a potential construction deficiency, based on the possibility a breakdown of the QA program and the potential for a large number of unsatisfactory Cadwelds. This problem was officially identified to the inspector on November 1, 1979. After evaluation, the licensee concluded this matter was not a reportable deficiency.<sup>2/</sup>

b. Structural Fabrication of Primary Shield Wall

Chicago Bridge and Iron Nuclear (Memphis, Tennessee) is under subcontract to Chicago Bridge and Iron for the construction of the Primary Shield Wall. As a result of an audit conducted by Stone and Webster (with GSU participation) work was stopped due to lack of compliance with the QA program. Specific welding problems were cited in the audit report of September 10-11, 1979. This problem was officially identified to Region IV on November 5, 1979. The evaluation of the NDE performed during fabrication is continuing.<sup>3/</sup> The licensee will make a final report on the matter by January 5, 1980.

c. Grade 50 Reinforcing Steel

Problems have been noted over the past several months relating to nicks and gouges, which exceed the specification 210.341 limits and were found in Grade 50 reinforcing steel. These problems were documented in N&D No. 9081C of September 6, 1979. An extensive test of "rejectable" rebar has been conducted. No material failures below 50,000 psi were identified. The cause seems to be rolling problems at the mill (Transamerica Steel Corporation). The resolution required a significant amount of review and analysis and removal of some rebar which had been placed in the base mat. The NRC (Region IV) was officially informed of this matter on November 1, 1979. After evaluation, the licensee<sup>4/</sup> concluded that this item was not a reportable deficiency.<sup>4/</sup>

<sup>2/</sup>GSU letter to NRC (Region IV), dated November 19, 1979 (RBG-6922)

<sup>3/</sup>GSU letter to NRC (Region IV), dated December 3, 1979 (RBG-?)

<sup>4/</sup>GSU letter to NRC (Region IV), dated November 19, 1979 (RBG-6923)

The above three items were considered potentially significant within the context of 10 CFR 50.55(e) at the time of the inspection, based on the information available. Failure to report a construction deficiency within 24 hours constitutes an item of noncompliance. Reportability of these items is considered unresolved and will be reviewed in a subsequent inspection.

6. Containment Base Mat

The licensee reported to the IE Inspector that it was the intention of the Constructor, Stone and Webster, to make a monolithic containment base mat placement. Planning for the placement is now in process.

7. Mill Test Reports for Special Reinforcement No. 18 Bar

Stone and Webster N&D No. PQC-5-D003 identified a problem in mill test reports which failed to provide a notation that deformations conform to ASTM A615. The rebar was accepted by the engineer reviewing the N&D. In the review of the results of the Chemical and Physical test records of this special rebar, several instances were noted by the IE inspector where the values of chemical analysis did not conform to Specification 210.341 limits. Criteria tolerance (+ or - values) for acceptance could not be determined during the inspection. The licensee stated they could provide this information.

This item is considered unresolved and will be reviewed in a subsequent inspection.

8. Failure to Make Complete Petrographic Analysis Report of Aggregates

During the review of Stone and Webster Specification 210.360, "Concrete Testing Services," the IE inspector compared the contents of the petrographic report (See Paragraph 4.a.(1) of this report) with the specification requirements. Specification 210.360, (lines 950-968) states:

"The petrographer shall submit a written report covering the following items:

- "1. Gradation of each sample and conformance to ASTM C33.
- "2. Compatibility of the fine aggregate with the coarse aggregate and with regular Type II portland cement. Also, the advisability of using Type II, low alkali portland cement.
- "3. Recommendations for any additional petrographic, chemical, physical or geological investigations that may be required for evaluation of adverse properties that are indicated in the examination that has been performed.
- "4. A brief simple conclusion that the material appears to or does not appear to be innocuous for use in concrete based on this examination."

Items 1, 2, and 3 were not provided in the petrographer's report. This was made known to the licensee representatives and an N&D, No. 9149, was issued on October 31, 1979. Failure to follow the specification requirements is an item of noncompliance with 10 CFR 50, Appendix B, Criterion V.

9. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of non-compliance, or deviations. Unresolved items disclosed during the inspection are discussed in paragraph 5 (Reporting of 50.55(e) Matters) and paragraph 7 (Mill Test Report for Special Reinforcement No. 18 Bar).

10. Exit Interview

The IE inspector met with the licensee representatives (denoted in paragraph 1) at the conclusion of the inspection on November 1, 1979. The IE inspector summarized the scope and findings of the inspection. The items of noncompliance and unresolved items were discussed.