

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

Report No. 50-458/79-03

Docket No. 50-458

Category A2

Licensee: Gulf State Utilities Company
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

Inspectors: C. R. Oberg 8/14/79
C. R. Oberg, Reactor Inspector, Projects Section Date
(Paragraphs 1, 2, 6 & 7)

J. I. Tapia 8-14-79
J. I. Tapia, Reactor Inspector, Engineering Support Date
Section (Paragraphs 3, 4 & 5)

Approved: W. A. Crossman 8/14/79
W. A. Crossman, Chief, Projects Section Date

R. E. Hall 8/14/79
R. E. Hall, Chief, Engineering Support Section Date

Inspection Summary:

Inspection on July 16-19, 1979 (Report No. 50-458/79-03)

Areas Inspected: Routine, unannounced inspection of preparations for placement of safety-related concrete; licensee action on previously identified inspection items; Cadwelding; and QA program reviews. The inspection involved fifty-six hours by two NRC inspectors.

Results: Of the four areas inspected, no items of noncompliance or deviations were identified.

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DETAILS

1. Persons Contacted

Principal Licensee Personnel

- *J. E. Wimberley, Superintendent, Site Construction
- *T. L. Crouse, Director, Quality Assurance
- *R. B. Stafford, Supervisor, Quality Systems
- *G. T. Warner, QA Consultant
- M. E. Walton, Nuclear Staff Consultant
- *J. Dunkelberg, Assistant Superintendent, Site Construction
- *C. B. Graham, QA Representative
- *J. P. Cook, QA Representative
- *W. S. Stewart, Quality Systems Representative

Stone & Webster

- *K. Jadeja, Head, Site Engineering Office
- *A. Kamdar, Resident Engineer
- *L. T. Rowen, QA Engineer
- D. Wells, FQC Civil Engineer

Others

- R. C. Wheeler, Site Superintendent QA, National Mobile Concrete Corporation

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

*Denotes those present at the exit interview.

2. Licensee Action on Previously Identified Inspection Findings

(Open) Unresolved Item: Concrete Mix Design (50-458/79-02).
(See Paragraph 5 of this report)

(Open) Unresolved Item: QA Program of Suppliers of Material and Services (50-458/79-02). Three suppliers of materials and services that affect safety-related activities were reviewed for QA program conformance. A list of applicable procedures for procurement of services was requested from Stone & Webster. This will be provided to the IE inspector during the next inspection.

In regard to QA program qualification, the following documentation was reviewed:

National Mobile Concrete Corporation (NMCC)

QA Survey of NMCC - River Bend Plant - Survey, dated July 6, 1979

NMCC QA Manual approval by S&W, dated June 22, 1979

NMCC QA Program Change Request (PCR), "Calibration at Batch Plant Measuring Devices," dated June 20, 1979

NMCC QA PCR, "Change in Material Suppliers," dated July 13, 1979

NMCC QA PCR, "Materials Source Identification," dated July 11, 1979

NMCC SP# NMCC-SP-042, "Shipping, Receiving, Handling & Storage of Cement," dated July 11, 1979

The procedures for qualifying personnel who perform inspections and/or tests, handle resultant data and control records thereof are given in Part II, Section 80, of the QA program at National Mobile Concrete Corp. These procedures were found to meet the requirements set forth in ANSI N45.2.6-1973, "Qualifications of Inspection, Examination, and Testing Personnel for the Construction Phase of Nuclear Power Plants."

Records show that two NMCC employees have been certified to perform duties as Level II inspectors.

Missouri Portland Cement

Material Supplier Approval (by NMCC) P. O., dated June 28, 1979

Material Supplier QA Review (Document 30.1), dated June 1, 1979

Specific portions of the NMCC QA manual were to be applied to Missouri Portland Cement Company. However, a specific reference or letter could not be provided. The licensee representative stated that the following section applies: NMCC QA Manual (issued 6/14/79), Section 40, Part II, "Material Control Procedures." In view of the unavailability of specific documented application, this item remains open.

Dixie Sand & Gravel Company

A material supplier review was conducted by NMCC on June 1, 1979. The material supplier was approved by S&W on June 22, 1979, as a supplier of fine aggregate, #57 course aggregate and #67 course aggregate. Specific portions of the NMCC QA manual apply contractually to Dixie Sand & Gravel. However, as in the case of Missouri Portland Cement Company, this item remains unresolved until the proper documents are provided to the IE inspectors.

(Closed) Unresolved Item: Storage Requirements for Cement (off site) (50-458/79-02). This unresolved item is concerned with the quality control aspects of the supplying of Type II cement to the River Bend site. Through discussion with appropriate licensee representatives and review of Special Procedure No. NMCC-SP-042, the following was determined:

- a. Tube sampling will be done for each truck sampled in accordance with ASTM C183, by the on-site QC personnel.
- b. Approximately 23 to 26 tons of cement will be shipped on each truck. This cement will come from sealed silos in Baton Rouge. Prior to offloading the river barges from Missouri Portland, certification of cement delivered will be reviewed by NMCC Quality Assurance. NMCC will control the loading of the cement into trucks.
- c. Cement User Tests will be done in accordance with ASTM C150 by Southwest Research Laboratory. Results will be reviewed by S&W engineering staff.

This item is considered closed.

3. Site Tour

The IE inspectors toured the various construction areas to observe construction activities in progress and to inspect the general state of housekeeping and storage. Included in the tour was a trip down the river access road to the banks of the Mississippi River in order to observe erosion caused by seasonal spring flooding. A review of surveyor's profiles of the river access road and of the river road which runs adjacent to the bank indicated, a general sloping trend toward a low spot on the bank where backflow of the receding floodwater caused a washout of the river road.

No items of noncompliance or deviations were identified.

4. Cadwelding

Ongoing cadwelding activities for the basemat reinforcing steel were observed. Layer No. 5 of the steel was being prefabricated during this inspection.

Work activities observed were found to conform with the requirements contained in Stone & Webster (S&W) Construction Method Procedure (CMP) No. 6.1-9.76, "Cadwelding of Reinforcing Steel Bars," and in S&W Quality Standard (QS) 9.11, "Cadwelding," Revision B. Adherence to the adjacent Cadweld stagger requirement contained in S&W Specification No. 210.370, "Placing Concrete and Reinforcing Steel," was verified for portions of layers 5 and 6. The six detailed construction prints in use at the jobsite were subsequently checked at the document control office for current revisions.

During the inspection, a discussion was held with the principal Quality Control Engineer who was performing in-process inspection in accordance with S&W Quality Assurance Directive (QAD) 9.1, "Cadweld Inspection," Revision A. The conversation established the controls used for the development of as-built drawings. These controls assure welder and material traceability through the use of a unique identification number

which is assigned to each Cadweld splice. In addition, two cadwelder qualification tests were witnessed by the IE inspector.

No items of noncompliance or deviations were identified.

5. Concrete Mix Design

A review was conducted of the test data used to construct Trial Concrete Mix Curves No. 1W, 2W, 3W, and 5W. The curves show the relationship between the water-cement ratio and compressive strength and are constructed in accordance with Building Code Requirements for Reinforced Concrete (ACI 318-71). The following supportive data were reviewed for each curve:

Trial Batch Proportions Report

Aggregate Gradation Report

Compressive Strength Test Report

Slump and Air Content Determinations

The Delta Testing and Inspection, Inc., "Report on Test of Water and Water Used for Ice for Suitability in Production of Concrete," was also reviewed. The following test results were contained in the report:

Biological Oxygen Demand and Organic Content Determinations

ASTM C109-73, "Compressive Strength of Hydraulic Cement Mortars

ASTM C151-74, "Autoclave Expansion of Portland Cement"

ASTM C191-74, "Time of Setting of Hydraulic Cement by Vicat Needle"

Water Chemical Analysis

National Mobile Concrete Corporation's Quality Assurance program manual, Section 123.2.7 states that, "Water used for mixing the end product and producing ice will comply with 'Water and Water for Ice' of the Contract Specifications." Stone & Webster Specification No. 210.350, "Mixing and Delivering Concrete," requires, under the section entitled "Water and Water for Ice," that the water conform to the requirements contained in S&W Specification No. 210.360, "Concrete Testing Services." A review of that specification did not disclose the acceptance criteria being used by the engineering staff for the water chemical analysis. Discussions with the engineering staff representatives indicated the results of the water chemical analysis were being compared to an American Concrete Institute water analysis standard, which is based on values obtained by sampling the water supplies of selected cities throughout the United States. This standard was not available for review at the site, but rather was located in the design engineer's (S&W) home office.

Inclusion of the standard's values for use as acceptance criteria in the Concrete Testing Services Specification is considered an unresolved item, which will be reviewed during a subsequent inspection.

6. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of noncompliance, or deviations. An unresolved item disclosed during the inspection is discussed in the following paragraph:

5 - Concrete Mix Designs

7. Exit Interview

The IE inspectors met with licensee representatives (denoted in paragraph 1) at the conclusion of the inspection on July 19, 1979. The scope and findings of the inspection were summarized by the IE inspectors. The unresolved items were discussed. The adequacy of drawings for the aggregate storage pads was also discussed. The senior licensee representatives agreed to examine this matter.