

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

REGION IV

Report No. 50-458/80-08

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: Stone and Webster Engineering Operations Center  
Cherry Hill, New Jersey

Inspection Conducted: July 30-31, 1980

Inspector: A. B. Beach 8/18/80  
A. B. Beach, Reactor Inspector, Projects Section Date

Reviewed: C. R. Oberg 8/18/80  
C. R. Oberg, Reactor Inspector, Projects Section Date

Approved by: C. R. Oberg 8/18/80  
for W. A. Crossman, Chief, Projects Section Date

R. E. Hall 8/18/80  
R. E. Hall, Chief, Engineering Support Section Date

Inspection Summary:

Inspection on July 30-31, 1980 (Report No. 50-458/80-08)

Areas Inspected: Special, announced inspection of the licensee's investigation into the concerns expressed by the Union of Concerned Scientists in their letter to the U. S. Nuclear Regulatory Commission, dated July 21, 1980. The inspection involved thirteen inspector-hours by one NRC inspector.

Results: No items of noncompliance or deviations were identified.

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## DETAILS

### 1. Persons Contacted

#### Principal Licensee Employees

##### Gulf States Utilities (GSU)

- T. Crouse, Director of Quality Assurance
- \*J. Hudson, Quality Engineering Supervisor (Team Leader)
- \*G. King, QA Engineer, Instrumentation/Control
- \*E. Troncelliti, QA Engineer, Electrical
- \*R. Jackson, Electrical Engineer, Power Plant Engineering and Design
- \*L. England, Assistant Project Engineer
- \*M. Rahman, Lead Electrical Engineer
- \*B. Reed, Supervisor of Licensing

##### Stone and Webster Employees

C. Lundin, Project Quality Assurance Manager

The IE inspector also interviewed and talked with other Stone and Webster employees.

\*Denotes members of the GSU investigation team.

### 2. Reason for Inspection

As a result of a letter from the Union of Concerned Scientists (UCS), dated July 21, 1980, to three Commissioners of the U. S. Nuclear Regulatory Commission, the IE inspector accompanied Mr. T. Crouse, Director of Quality Assurance for the River Bend facility, and Mr. C. D. Lundin, Project Quality Assurance Manager at the site for Stone and Webster, to the Stone and Webster Operations Center in Cherry Hill, New Jersey. The purpose of the inspection was to gather preliminary information, as available, relative to the GSU investigation of the allegations in the UCS letter of request submitted (pursuant to 10 CFR 2.206) to halt construction of River Bend, Units No. 1 and 2. Since Unit No. 2 is not presently under construction, the allegations pertain only to River Bend, Unit No. 1.

### 3. Summary of Allegations

The following allegations are "the specific examples of dangerous practices provided by the individual." After each allegation is a summary of the results of observations made and the documentation reviewed by the IE inspector.

#### a. Allegation:

"[F]actory-reworked areas of 600 volt power and control cables have not been qualified for nuclear application per the relevant sections of IEEE 323 (IEEE Standard for Qualifying Class IE Equipment for

Nuclear Power Generating Stations) and IEEE 383 (IEEE Standard for Type Test of Class IE Electric Cables, Field Splices, and Connections for Nuclear Power Generating Stations), and will not (be) before the cable is shipped to the jobsite (Aug. 25). Once on site, the pressure to install this cable, despite (its) lack of full pedigree, will be immense. And if defective cable, or cable with defective factory rework, is installed, and if at some future time this cable fails during a serious plant condition, we could be in the soup all over again - another TMI!" The vendor of this cable is Okonite Company and it "routinely makes repairs and splices on cable in process."

Inspection Results:

Stone and Webster Specification 241.234 for 600 volt power cable and Stone and Webster Specification 241.240 for 600 volt control cable both impose the requirements of IEEE 323 and IEEE 383 for cable purchased from Okonite. These standards require that factory reworked cable be qualified for nuclear application. This requirement is further verified by a Stone and Webster letter to Okonite, dated April 21, 1980. Qualification work pertaining to factory repairs/rework and spliced cable is in progress. Test results will be available in early 1981.

No cable is to be shipped to the jobsite by August 25, 1980, as alleged. A fabrication hold on cable has been in effect since June 26, 1980, because of deficiencies identified in a Stone and Webster QA audit. As yet, no cable has been fabricated for River Bend for nuclear application.

Activities at the site involve identification of cable splices, not qualification of cable splices, as referenced by GSU QA finding Report 80-5-14-E (May 21, 1980) and an E&DCR in process, dated May 2, 1980.

b. Allegation:

"No position has yet been written on Reg. Guide 1.131." NRC Regulatory Guide 1.131, "Qualification Tests of Electric Cables and Field Splices for Light-Water-Cooled Nuclear Power Plants," endorses, with modifications, IEEE 383. In other words, GSU has not yet decided the manner in which (or extent to which) it will comply with requirements for qualifying electric cables and splices, despite the fact that construction has been underway for three years.

Inspection Results:

Regulatory Guide 1.131, dated August 1979 is only issued for comment; however, Stone and Webster, in a Regulatory Guide position statement, dated December 12, 1979, has accepted the regulatory guidance in that it represents no change to current Stone and Webster practice. A review for acceptance into the River Bend PSAR was initiated on March 24, 1980, by Gulf States Utilities and is still in process. The River Bend PSAR still endorses IEEE 383 requirements. Site

specifications impose IEEE 383 requirements, thus qualification requirements have been established.

Construction of the River Bend facility has not been underway for three years. The construction permit was issued March 1977, but actual site construction did not start until August 1979.

c. Allegation:

"The conductor tests of the thermocouple extension wire and on 300 volt instrument cable will be performed on a bulk basis and there will be no direct traceability from the conductor to the power plant."

Inspection Results:

For thermocouple extension wire, Rockbestos must maintain traceable receiving inspection reports which verify EMF values are within standard limits of error per ANSI C961. Rockbestos purchases this conductor from a supplier. This requirement is verified in a letter from Rockbestos to Stone and Webster on July 7, 1980, confirming a meeting on this subject July 1, 1980.

For instrument cable, conductor testing is performed on the completed cable in accordance with IPCEA S-19-81, ASTM B8, ASTM B33, and ASTM B189. A specification revision is in process to reflect conductor resistance testing in lieu of resistivity testing for individual strands. Traceability is made from the conductor to the reel through the resistance test reports for each reel.

Rockbestos has requested a change to Stone and Webster Specification 241.242 to supply a Certificate of Conformance in lieu of actual test reports. No action will be taken until the licensee can assure traceability through the Certificate of Conformance.

d. Allegation:

"Large amounts of cable tray have been damaged in the field. The vendor, Husky Products, has provided repair instructions, but none of the repairs proposed have met the seismic qualification criteria."

Inspection Results

Approximately 17,000 pieces of cable tray have been shipped to the River Bend site as of July 28, 1980. All of this tray has been aluminum. None of the galvanized tray to be used in containment applications has been delivered.

Of this 17,000 tray, 82 trays have been identified as being damaged, as indicated on N&Ds 9415 (March 2, 1980), 9498 (March 29, 1980), 9666 (May 2, 1980), and 9753 (June 18, 1980). N&D 9753 supersedes the previous N&Ds and has not yet been dispositioned.

The dispositioning is awaiting Stone and Webster approval of Husky (cable tray manufacturer) recommendations and seismic calculations for removal of a cable tray rung. These recommendations and calculations are in the review cycle; thus, no repairs will be initiated until it can be assured that the seismic qualification criteria will not be violated.

e. Allegation:

"Large quantities of cable tray have been shipped without Husky ever having complied with the specification requirement that their seismic qualification criteria must be approved by a professional engineer."

Inspection Results:

Stone and Webster Specification 241.320 by Addenda No. 5 was changed to delete the requirement that the seismic design requirements in a Certificate of Compliance be signed by a professional engineer prior to shipment. However, these calculations were reviewed by Stone and Webster prior to the first shipment of cable tray to the River Bend site in December 1979. The required Certificate of Compliance was signed on May 20, 1980, by the responsible Husky professional engineer and transmitted to Stone and Webster Engineering on June 5, 1980.

f. Allegation:

"The power run to the makeup water structure is done with two entirely different type cables, thereby violating good engineering practice and possibly compromising the grounding system."

Inspection Results:

The power (cable) run to the makeup water structure is a nonsafety application; however, there are two types of cables - a single conductor for cable tray and conduit applications, and three conductor cable for direct burial applications. This does not violate good engineering practice.

g. Allegation:

"Where large cables are dropped through a cable tray, it is necessary to remove a rung to provide the necessary bending radius for the cable. Cable tray with a rung removed has not been proven to be seismically qualified."

Inspection Results:

Stone and Webster Specification 248.000, "Electrical Installation," requires that one tray rung may be removed to maintain the required

bending radius, subject to approval by the engineers. However, as is stated in the response to Allegation "d," Stone and Webster Engineering is currently reviewing the seismic acceptability of removing a rung. In addition, no cable trays have been installed to date.

h. Allegation:

"Power cable runs have been sized and specified on the basis of calculations E112, E119, and E120, none of which has yet been approved."

Inspection Results:

Only power cable calculation E120 has any Category I applications. It has not been approved, and until approved, E46H has been used for the sizing of the cables. After E120 is approved, it will supersede E46H.

i. Allegation:

"A size of 15KV cable is ordered in Specification 241.232 that does not appear in the design criteria (241.200)."

Inspection Results:

15KV cable has no Category I applications at the River Bend site; however, a review of Specification 241.232 against design criteria 241.200 showed that the cables specified in 241.232 are in full compliance with the design criteria.

4. Summary:

No Category I cable has been delivered to the River Bend facility, nor has fabrication for any of this cable been initiated. No safety-related cable tray has been installed. All of the above allegations speak to problems or deficiencies that have been identified by the licensee or the contractor in the fabrication area and thus appear premature considering the status of construction.

Documentation provided by the licensee verified that all of the subjects discussed in the allegations had been identified by proper courses of action. While some of the allegations speak to current problems which must be solved prior to the full-scale installation of electric cable, the solutions to these problems cannot be achieved until the manner in which the commitments are to be met is finally determined.

No items of noncompliance or deviations were identified.