APPENDIX

U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-458/82-07 Category: A-2

Docket: 50-458

Licensee: Gulf States Utilities
P. O. Box 2951
Beaumont, Texas 77704

Facility Name: River Bend Station

Inspected At: River Bend Station, St. Francesville, Louisiana

Inspection Conducted: June 28-July 2, 1982

Inspector: D M Hunnicutt for R. T. Redano, Reactor Inspector, Engineering Section — Date 7/28/82

Reviewed: D M Hunnicutt — D. M. Hunnicutt, Chief, Engineering Section — Date 7/28/82

Approved: W A Crossman — W. A. Crossman, Chief, Reactor Project, Section B — Date 7/29/82

Inspection Summary

Inspection Conducted on June 28 - July 2, 1982 (Report 50-458/82-07)

Areas Inspected: Routine unannounced inspection of the Quality Assurance, QA, Program for the receipt, storage, inspection, installation, identification, protection, and separation of electrical cable and associated components. The inspection involved 37 hours onsite by one NRC inspector.

Results: Within the areas inspected, no violations or deviations were identified. One new unresolved item, (8207/01) is identified in paragraphs 2c and 2g of the enclosed report.

DETAILS

1. Persons Contacted

Principal Licensee Employees

*M. E. Walton, Assistant Project Engineer, Gulf States Utilities (GSU)
*R. B. Stafford, Supervisor - Quality Engineering, GSU
*P. E. Freehill, Superintendent - Startup and Test, GSU
*G. V. King, Operations QA Supervisor, GSU
*P. D. Graham, Director of QA, GSU
*R. W. Oprea, QA Engineer, GSU
*K. C. Hodges, QA Engineer, GSU
R. W. Helmick, Construction Supervisor, GSU
R. V. Oliveri, Electrical Startup and Test Engineer, GSU

Stone & Webster (S&W) Engineering Corporation

*R. A. Fisher, Senior Training Supervisor, S&W
*J. J. Zullo, QA, S&W
*R. L. Spence, Field Quality Control Superintendent, S&W
*R. J. Fay, QC Engineer, S&W
*A. Kaindov, Engineer, S&W
*M. I. Furer, Chief Construction Electrical Supervisor, S&W
*N. W. Pressler, Chief Electrical Inspection Supervisor, S&W
*R. J. Brigham, Engineering Assurance, S&W
*P. D. Hanks, Construction Superintendent, S&W
D. S. Foster, Inspector - Level II Electrical, S&W
W. R. Kilgore, Senior Construction Electrical Engineer, S&W

*Denotes presence at the exit interview conducted on July 2, 1982.

Other licensee and contractor personnel were contacted during the course of inspection activity.

2. Electrical Quality Assurance Implementing Procedures

The NRC inspector examined the licensee's quality assurance (QA) program to determine whether adequate procedures and documentation exist to control electrical cable activities in the following areas: (a) receipt inspection and storage, (b) handling and installation, (c) inspection and testing, (d) identification, (e) raceway separation and protection, (f) raceway loading, (g) cable nondestructive examination (NDE) after installation, and (h) design changes, deviations, and unusual problems.

a. Receipt Inspection and Storage

The NRC inspector examined the licensee's QA inspection and documentation program dealing with receipt inspection, onsite storage, and segregation of electrical cable. The inspection procedures and other documentation examined appear adequate to ensure that incoming cable

conforms to purchase specifications, damaged cable is identified and rejected, and cable is properly stored to protect against construction damage and adverse environmental conditions. The documents and procedures examined are listed below.

- Quality Assurance Inspection Plan R1999999F05070B00, "Receiving Material/Equipment Source Inspected by PQC," October 22, 1981
- Quality Assurance Inspection Report Type - A
- Quality Assurance Department Reject Tag 5040.39C
- Quality Assurance Department Reject Tag 5040.18B

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

b. Handling and Installation

The NRC inspector examined the licensee's QA program dealing with handling and installation of safety-related electrical cable. The inspection plan and documentation examined appear adequate to ensure that current drawings and specifications are being used by craftsmen during installation, work procedures are established for cable installation, and properly calibrated tools are used for handling and installing cable.

The NRC inspector viewed the training film "Installation of Insulated Electrical Cable" and noted the licensee's use of video-technology in training craft. The training program review of this film by the licensee QA staff was also examined by the NRC inspector. The use of electronic data storage by Stone & Webster to document the training records of each craftsman appeared to be an effective tool for maintaining such voluminous records. This system is still in the evolutionary stage and improvement is needed in maintaining these records up to date. The NRC inspector noted that the most recent Construction Training Records System computer printout, CTRS 06B, was dated May 10, 1982, and contained training information up through March 31, 1982.

The QA surveillance program was examined to ascertain whether the QA program adequately ensures that properly qualified and trained personnel are used to perform class 1E work activities. The surveillance programs examined appear to adequately ensure that personnel handling and installing cable are properly trained. The documents and procedures examined are listed below.

- Quality Assurance Inspection Plan R1248000F05180000, "Electrical Cable Installation," March 31, 1982.

- QA Surveillance Checklist S011A on Construction Training, March 16, 1981
- QA Surveillance Checklist 3-003 on Stone & Webster (S&W) Training, October 20, 1980
- QA Surveillance Checklist S-011B on S&W Site Training, May 4, 1981
- July 1982 Training Schedule from R. A. Fisher
- Quality Assurance Inspection Report E2000338, March 21, 1982
- Training Program Review of "Installation of Insulated Electrical Cable," by Norman Pressler, June 25, 1982
- Material and Test Equipment (M&TE) Use Log 11260, CTRS-06B, May 10, 1982
- S&W Specification for Electrical Installation 248.000, November 9, 1981

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

c. Inspection and Testing

The NRC inspector sought to determine whether inspection and testing of electrical cable and associated components adhere to the the licensee's procedural commitments. The inspector noted that S&W Specification 248.000 on electrical installation presently requires meggering of all safety-related control instrument and power cable. After interviewing cognizant personnel in the S&W Electrical Engineering Department, the NRC inspector learned that this section of Specification 248.000 is being rewritten to redefine responsibilities and commitments in the area of cable testing. This area will remain an unresolved item (8207/01) until the new section of Specification 248.000 is approved and issued. The documentation examined is listed below.

- S&W Specification for Electrical Installation 248-0000, November 9, 1981
- Cable Pull Ticket, Stone & Webster

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

d. Identification

The NRC inspector examined the licensee's procedures and documentation dealing with the identification of electrical cable from receipt through installation and cable terminations. The QA program in this area appears adequate to assure that cable is traceable from receipt through installation, cable terminations are properly identified and verified, and tools used for terminating cable are calibrated as required. The documents and procedures examined are listed below.

- S&W Conductor Termination Sheet
- Quality Assurance Inspection Plan R1248000F05180000, "Electrical Cable Installation," March 31, 1982
- Quality Assurance Inspection Plan R1999999F05070800, "Receiving Material/Equipment Source Inspected by PQC," October 22, 1981
- Cable Pull Ticket, Job 12210.00
- Stone & Webster Cable INPSANJ317, May 6, 1982

No violations or deviations were identified in this portion of the inspection

e. Raceway Separation and Protection

The raceway installation inspection plan and specification were examined by the NRC inspector to determine whether raceway installation meets physical and electrical protection and separation requirements. The NRC inspector concluded that the QA procedures in this area appear to assure that raceway installation and cable installed in raceways will meet protection and separation requirements. The procedures and specifications examined are listed below.

- Quality Assurance Inspection Plan R1248000F05070C00, "Electrical Installation," November 12, 1981
- Quality Assurance Inspection Plan R1248000F05180000, "Electrical Cable Installation," March 31, 1982
- Raceway Ticket, Job 12210-00
- Stone & Webster Raceway ITX153B, December 15, 1980

In examining the raceway ticket for the Category I raceway listed above, the NRC inspector also checked the training records of the electrician who performed the raceway installation. The installation was performed by a journeyman electrician.

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

f. Raceway Loading

The NRC inspector sought to determine whether adequate QA procedures exist to verify that cable conduit and raceway fill limits are in compliance with specifications. The documentation examined appeared to assure that both thermal fill and mass fill limits are maintained in accordance with specifications. The procedure and documentation examined are listed below.

- Quality Assurance Inspection Plan R1248000F05180000, "Electrical Cable Installation," March 31, 1982
- Raceway Ticket, Job 12210.00
- Stone & Webster Raceway ITX153B

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

g. Cable NDE After Installation

The NRC inspector sought to verify that post-installation testing of cable, such as meggering, high potential and continuity, is adequately verified by the licensee's QA program. This subject is included in Unresolved Item 8207/01, as discussed in paragraph 2c above.

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

h. Design Changes, Deviations, and Unusual Problems

The NRC inspector examined the engineering and design change request (E&DCR) system used by the licensee to ascertain whether there is adequate QA involvement to assure that such changes adhere to established specifications and requirements. The E&DCR system appears to assure that all design changes and deviations receive the same QA cognizance and treatment as originally designed work and the implementation of such changes and deviations adheres to established specifications and requirements.

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

3. Cable Installation

The NRC inspector observed the pulling of Category II cable 1NPSNNJ331 through multi-elevation raceways. The licensee was utilizing this cable pull to train its electricians and electrical quality control (QC) inspectors in their respective duties during Category I cable installation. The NRC inspector noted the use of lubricant gel and pulleys to reduce friction during the cable pull. The electricians that were observed performed the cable installation in a careful and conscientious manner. The QC inspectors who were questioned, displayed adequate knowledge of the subject of cable pulling. The licensee's use of Category II cable installation appears to be a beneficial training tool for its QC inspectors and electricians prior to the initiation of Category I cable installation.

No violations or deviations were identified in this area.

4. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, violations, or deviations. Unresolved items disclosed during this inspection are discussed in paragraphs 2c and 2g.

5. Exit Interview

An exit interview was conducted on July 2, 1982, with those persons denoted in paragraph 1 of this report. At the interview, the inspector discussed the findings indicated in the previous paragraphs. The licensee acknowledged these findings.