APPENDIX

U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

Report: 50-458/82-01

Docket: 50-458

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

Facility Name: River Bend, Unit No. 1

Inspection at: River Bend Site

Inspection Conducted: January 1, 1982 through February 20, 1982

Inspector: W A Crossman for A. Bill Beach, Resident Reactor Inspector — 3/15/82 Date

Approved: W A Crossman W. A. Crossman, Chief, Reactor Project Section B — 3/15/82 Date

Inspection Summary:

Inspection During January and February (Report 50-458/82-01)

Areas Inspected: Routine, announced inspection by the Senior Resident Inspector including follow up of previous inspection findings; follow up of licensee identified items; reporting of construction deficiencies; and site activities relative to electrical and instrumentation installation. The inspection involved 176 hours by one NRC inspector.

Results: Of the three major areas inspected, no violations were identified in two of the areas. In the area of reporting significant construction deficiencies, one violation was identified (Violation - Failure to Provide Timely Notification of a Construction Deficiency, paragraph 4).

1. Persons Contacted

Principal Licensee Employees

*P. D. Graham, Director, Quality Assurance
C. L. Ballard, Supervisor, Quality Assurance
R. B. Stafford, Supervisor, Quality Assurance
*G. V. King, Supervisor, Quality Assurance
*K. C. Hodges, NRC Compliance Coordinator, Quality Assurance
*T. C. Crouse, Superintendent, Site Construction
*M. A. Walton, Director, Site Engineering

Stone and Webster Personnel

*C. D. Lundin, Manager, Project Quality Assurance
*R. L. Spence, Superintendent, Field Quality Control (FQC)
*G. M. Byrnes, Assistant Superintendent, FQC
*J. D. Davis, Assistant Superintendent, FQC
*R. L. Whitley, Assistant Superintendent, FQC
*W. I. Clifford, Senior Resident Manager
*C. A. Goody, Resident Manager
E. A. Sweeny, Superintendent of Site Engineering
*P. D. Hanks, General Superintendent, Construction
D. P. Barry, Superintendent, Construction Services

The RRI also interviewed additional licensee, Stone and Webster, and other contractor personnel during this inspection period.

*Denotes those persons with whom the RRI held on-site management meetings during this inspection period.

2. Action on Previous Inspection Findings

A. The following items remain open in the electrical area:

(Open) Unresolved Item (50-458/80-13): Qualification of Anaconda Cable. This item will remain open until completed qualification data has been made available and reviewed.

(Open) Unresolved Item (50-458/81-09): Verification of Seismic and Environmental Qualification Documentation. The implementation of the licensee's program to control installation of equipment prior to verification of its relevant qualification documentation has not yet been reviewed. The volume of equipment installation and the amount of qualification data available at this point in time of the construction phase is not sufficient to assess the adequacy of the controls imposed by the licensee. This item will remain open.

(Open) Unresolved Item (50-458/81-09): Qualification of NSSS Equipment to IEEE 323-1974 Requirements. The licensee and the NSSS Supplier are currently evaluating the measures necessary to assure that the requirements of the applicable standards are satisfied for this equipment. Thus, this item will remain open.

B. The following items remain open relative to requirements imposed by 10 CFR 50.55(e):

(Open) Deviation (50-458/81-10): Failure to Promptly Report a Potential Deficiency In Accordance with Previous Licensee Commitments. A letter was issued to the licensee requesting additional information as to how the licensee's system assures that all reportable deficiencies are identified and reported and additionally, how the reporting requirements are imposed on the licensee's agents, contractors, and/or subcontractors. Also, information as to how "potentially" reportable construction deficiencies are accommodated within the controls of the licensee's system must be obtained. Corrective action cannot be reviewed until an acceptable response from the licensee is received. This item will remain open.

(Open) Violation (50-458/81-11): Failure to Follow Procedures for Notification of Reportable Deficiencies. Actions taken to prevent further noncompliance were not addressed in the licensee's response. Corrective action will be reviewed after an acceptable response is received from the licensee. Thus, this item will remain open.

3. Licensee Identified Construction Deficiency Reports

(Closed) Beam Support Lift Inside Reactor Building. On November 4, 1981, a beam support being hoisted into the Reactor Building for installation was dropped some 100 feet and landed against the Reactor Building floor. One pipe spool 1-SVV-23-3-012 received major damage, and several others received minor damage, with some damage incurred to several structural steel beams.

This matter was reported to the NRC Region IV Office on November 13, 1981, as a "potential" construction deficiency. The licensee has completed the review of this matter and has concluded this accident does not meet the reporting requirements of 10 CFR 50.55(e) because "this isolated incident will not require a significant expenditure of manhours to correct the damage." Since there was not extensive damage or extensive repairs caused by this accident, this matter is considered closed.

(Open) Potential Failure of Brown Boveri Solid State Overcurrent Relays ITE-50D and ITE-50H. In accordance with 10 CFR 21 requirements, Brown Boveri Electric identified a potential problem with the ITE-50D and ITE-50H Series relays produced from 1976 through October 1980. The potential problem is that the relay may fail to drop out when an overcurrent drops to 98 percent of the preset overcurrent trip setting. This could prevent a breaker from reclosing after an overcurrent trip.

This problem was reported by Brown Boveri Electric to the NRC on June 6, 1981, and Stone and Webster Engineering informed the licensee on November 10, 1981. Four of these overcurrent relays were used in Class 1E 4.16 kv switchgear, and were to be replaced in the manufacturer's facilities, prior to shipment to the River Bend site.

The licensee reported this problem as a "potential" deficiency on November 12, 1981, to the NRC Region IV Office, and confirmed that these relays were to be replaced at the factory. Thus, since these defective relays were not to be installed in equipment used at the River Bend site, this matter is not considered to be reportable under the context of 10 CFR 50.55(e).

However, the licensee "concluded that this problem, were it to have remained uncorrected, could not have adversely affected the operational safety of the River Bend Station." The NRC inspector needs to obtain more information to ensure the licensee's evaluation included all applicable accident and failure modes. Thus, until this information can be obtained, this item must remain open.

(Closed) Potential Omission of Screw Lock Compound for Category I GE AKR-30 or GE AKR-50 Breaker Closing Assemblies. It was discovered by the GE Distribution Equipment Division that the flat head screw on the lower end of the closing spring assembly of AKR-30 and AKR-50 circuit breakers may "backout" because a thread-locking compound which should have been applied to the threaded portion of the flat head screw may have been omitted.

This omission could result in the screw interfering with the charging of the breaker's closing spring, and could prevent the breaker from closing.

This information was documented in a letter from General Electric dated September 24, 1981, to Stone and Webster Engineering Corporation, who telephonically notified Gulf States Utilities of the problem on November 10, 1981. Subsequently, on November 12, 1981, the licensee reported this matter as a "potentially" reportable deficiency in accordance with the requirements of 10 CFR 50.55(e).

There is no known deficiency in this equipment at the River Bend Station as these breakers have not been shipped. The suppliers were advised to assure this potential deficiency has been corrected prior to shipment of these breakers to the River Bend site. Thus, this problem is not considered to be reportable under the context of 10 CFR 50.55(e) requirements, and this matter is considered to be closed.

4. Reporting of Construction Deficiencies

10 CFR 50.55(e)(1) requires the holder of a construction permit to notify the Commission of each deficiency found in design and construction, which, were it to have remained uncorrected, could have adversely affected the safety of operations of the nuclear plant throughout the expected lifetime of the plant, and which represents a significant breakdown in any portion of the quality assurance program conducted in accordance with the requirements of Appendix B to this part.

10 CFR 50.55(e)(2) further requires the holder of a construction permit to notify within 24 hours the appropriate Nuclear Regulatory Commission Inspection and Enforcement Regional Office of each reportable deficiency.

Gulf States Utilities did not promptly inform Region IV that pipe whip restraint mounting brackets were found to have insufficient welds, as documented on Stone and Webster Nonconformance and Disposition Report (N&D) 2071. Inspections had been performed to the requirements specified on Chicago Bridge and Iron Shop Drawing, Stone and Webster File No. 0210-850-180-036C, instead of Detail AA on Stone and Webster Drawing No. 12210-ES-59H.

The Nonconformance and Disposition Report was initiated on January 5, 1982, after the concern was verbally identified in mid-December 1981. The N&D was dispositioned on January 17, 1982, and required that all twenty pipe whip restraint mounting brackets be removed.

A report of a problem, "Pipe Whip Restraint Mounting Brackets Insufficient Weld Not Detected During Shop Inspection (RB1-E-004)," was initiated by Stone and Webster. However, no evidence for evaluation for reportability within the context of 10 CFR 50.55(e) requirements was indicated on the N&D nor within the text of the problem report.

On January 18, 1982, a "Report of Deficiency, Defect, or Noncompliance," was initiated in accordance with River Bend Project Procedure 1.7, Figure 1.7-2 by GSU Engineering. However, this condition was not reported to the Region IV office as of January 29, 1982, contrary to 10 CFR 50.55(e)(1) and 10 CFR 50.55(e)(2) requirements.

Since this matter was not reported to the NRC Region IV Office at the time of the NRC inspector's inquiry, some nine working days after the problem was identified within the licensee's system, and some eighteen working days after being identified within the contractor's system, the requirements imposed by 10 CFR 50.55(e)(1) and 10 CFR 50.55(e)(2) were violated. This is considered to be a Severity Level III violation.

The Chief of the Reactor Project Branch, Division of Reactor Project and Engineering Programs, met with the Senior Vice-President of the River Bend Nuclear Group on February 8, 1982, at the the River Bend site to discuss this matter. Causes as well as corrective actions taken to assure the requirements for reporting construction deficiencies in accordance with existing NRC Region IV policies were discussed.

5. Site Tour

The NRC inspector toured the site several times during the inspection period. Construction progress, general practices, fire prevention, and fire protection practices were observed.

During one of these tours, on January 15, 1982, traceability of Category I Non-ASME structural steel was observed. As documented in NRC Inspection Report 50-458/81-10, the River Bend Project has generally purchased only Category I material. A limited amount of non-Category I material has been purchased in the past, but a program was established to control this material. It is the licensee's interpretation that traceability of Category I Non-ASME material (if all material is purchased Category I), is required only through receipt at the site, since the Category QA Program requirements applied throughout the design and procurement process assure the adequacy of this material, and no Category II, III, or QA/NA material may be substituted. In the past, all Category I Non-ASME structural steel was traceable to a specific CMTR to or from its point-of-use.

However, the following policy was proposed to be established and implemented with respect to Non-ASME Category I material.

a. Procurement of Category I material only - Procurement documents would be initialed and reviewed to assure that only Category I material is specified and the vendor is an approved S&W QA vendor. Noncategory material presently on site will be salvaged. Additionally, any data sheets that would allow purchase on non-Category I material would be revised or removed from the specification.

b. PQA activity would be in accordance with the S&W QA Program to assure material acceptability and vendor compliance with specification requirements.

c. Engineering would require Certified Mill Test Reports (CMTR's) and Certificates of Compliance to be sent with the shipment, and FQC will verify the adequacy of the CMTR at receipt.

d. Once the material has been accepted, traceability would no longer be required. If for some reason, FQC cannot accept the material (material deficiency and/or inadequate documentation), the material would be rejected and handled in accordance with the existing S&W QA Program.

On November 16, 1981, the licensee directed Stone and Webster in a memorandum to abandon the practice of individually marking HVAC structural steel hanger components for the purpose of providing point-of-use traceability and implement the program as outlined above. It states, "Stockpiles of non-Category I structural steel not presently in use shall be purged from the site and held for sale by GSU. Material presently in use shall be reviewed to verify it is permanently identified." Additionally, it states, "The practice of providing point-of-use traceability by hard markings on all other Category I structural steel shapes for use other than HVAC supports shall remain in effect unaltered."

On December 16, 1981, an Engineering and Design Coordination Report (E&DCR) C-30,490 was issued that deleted point-of-use traceability for duct supports and duct equipment supports, as well as any hard marking requirements. However, as observed by the NRC inspector on January 15, 1982, the non-Category I material still had not been purged from the site, after the E&DCR had been approved.

A licensee QA surveillance on January 22, 1982, verified that several shapes of structural steel had been found without any identification markings, nor could it be determined whether or not they (the shapes) were Category I.

On January 26, 1982, another GSU directive was issued to Stone and Webster to complete the implementation of the November 16, 1981, action plan.

A February 1, 1982, letter from Stone and Webster to the licensee indicates "Implementation of this approach at this stage of construction is proving to be difficult . . ." It further states, ". . . Stone and Webster believes our only recourse is to continue identification of steel for HVAC hangers." However, this identification was stopped as of the December 16, 1981, E&DCR (C-30,490).

Furthermore, similar material used in electrical applications was never uniquely identified, either to point-of-use, or possessing some type of identification indicating the material to have Category I applications. However, licensee and contractor personnel indicated their control procedures were adequate to assure only Category I material had been installed.

Criterion VIII to 10 CFR 50, Appendix B, "Identification and Control of Materials, Parts, and Components," states that ". . . measures be established for the identification and control of materials, parts, and components, including partially fabricated assemblies. These materials shall assure that identification of the item is maintained by heat number, part number, serial number, or other appropriate means, either on the item or on records traceable to the item, as required throughout fabrication, erection, installation, and use of the item. The identification and control measure shall be designed to prevent the use of incorrect or defective material, parts, and components."

River Bend management has interpreted this to mean that only those projects which purchase Category I, II, or III visually similar materials, are required by 10 CFR 50, Appendix B, Criterion VIII to assure that the identification of Category I items is maintained by heat number, part number, serial number, or other appropriate means, to point-of-use within the plant. However, since more than Category I structural steel was procured and not removed, some means of identification should have been implemented for this structural steel material to be used in Category I applications to satisfy Criterion VIII of Appendix B, and to satisfy the interpretation of River Bend management.

Currently, the program is being revised to trace all structural steel shapes that are procured Category I to the Category I structural steel storage yard. From there, the Category I material with safety-related applications must be requisitioned to a drawing number before it is released to the field. It will then be fabricated to perform its design function, and each piece will receive a unique mark to indicate the material is, in fact, Category I.

The NRC inspector will review the implementation of this new program, as well as determine whether or not any visually similar material to the steel used in these applications has been procured or could be made available at the site to other than specified Category I requirements. This type of steel could be confused with the unmarked steel used in electrical applications and that steel used in HVAC applications not properly identified in accordance with E&DCR-30,490. This matter, therefore, is unresolved.

No violations or deviations were identified.

6. Electrical Systems

a. Offsite Power Systems

The NRC inspector reviewed Section 8.2 of the Final Safety Analysis Report (FSAR), "The Offsite Power System," to ensure the requirements of Regulatory Guide 1.6, "Independence Between Redundant Standby (Onsite) Power Sources and Between Their Distribution Systems," were satisfied. Figure 8.1-4, "230kv Switchyard and Peripheral Loads," was evaluated to the guidance provided in Regulatory Guide 1.32, "Criteria for Electric Power Systems for Nuclear Safety-Related Power Plants," prior to initiating the review of the onsite power systems.

Separation of control power to switchyard equipment was difficult to determine from the figures and information provided. Discussions with the NRC project manager for River Bend revealed that additional information would be issued shortly in regard to a request concerning the electrical portion of the FSAR.

The 230/500 kv switchyard and the transformer yard, while in the early stages of construction, were then toured. These arrangements are shown in Figure 8.2.6, "Connection of Onsite 13.8 kv and 4.16 kv Distribution System to the Preferred Power Supply."

b. Onsite Power Systems

The NRC inspector initiated this portion of the inspection with the review of the FSAR requirements recorded in Section 8.3, "Onsite Power Systems." The design basis as well as applicable guides and standards were examined. Compliance with Regulatory Guides, as defined in Section 1.8, and qualification criteria, as provided in Sections 3.10 and 3.11, were reviewed.

During this review, it was noted that in Section 3.11.1.2, under "Regulatory Guides," that the recommendations of Regulatory Guide 1.131, "Qualification Tests of Electric Cables, Field Splices, and Connections for Light-Water Cooled Nuclear Power Plants," have been utilized "by including these requirements in appropriate equipment specifications." This Regulatory Guide was likewise referenced in Section 8.1.7.2.

Table 1.8-1, however, states the following; "The implementation provisions of the guide do not impose these requirements for RBS. However, where practical the provisions of Revision 0 of the guide will be implemented." The NRC inspector will ascertain specifically the regulatory guidance implemented by the licensee that is not contained within the provisions of IEEE 383-74 and Regulatory Guide 1.89, "Qualification of Class 1E Equipment for Nuclear Power Plants." Until this information can be obtained, specifically, to what extent is the guidance included in applicable site specifications, this matter is considered to be unresolved.

Additionally, from this review, in Section 8.3.1.2.2.2, "High Pressure Core Spray Power Supply System - Division III," the NRC inspector could not determine the extent of compliance to the requirements of IEEE 323-1974, "General Guide for Qualifying Class 1 Electrical Equipment for Nuclear Powered Generating Stations," for the components within this HPCS Power supply system.

The FSAR states, "The applicable requirements of IEEE 323 are incorporated into IEEE 387. IEEE 387-1977, "Criteria for Diesel Generator Units Applied as Standby Power Supplies for Nuclear Powered Generating Stations," implements IEEE 323-1974 requirements. In Section 1.8, however, it is evident that this equipment is to meet IEEE 387-1972 requirements which implement IEEE 323-1971 provisions.

Also, under the compliance provisions to Regulatory Guide, 1.100, "Seismic Qualification of Electric Equipment for Nuclear Power Plants," the FSAR states, "All Class 1E equipment of the HPCS system is seismically qualified to the requirements of IEEE 344-1971, which was the plant requirement for this equipment." A review of the Preliminary Safety Analysis Report (PSAR) indicates optional methods may be utilized to satisfy the requirements of IEEE 344-1975 (supplement to the Safety Evaluation Report). However, by the PSAR, all Class 1E equipment is to be in accordance with the qualification criteria in IEEE 323-1974. Until this matter can be clarified, and the NRC inspector can determine the basis for "the plant requirement for this equipment," this item is considered to be unresolved.

(1) Installation of Electric Raceways and Equipment

The NRC inspector observed the installation of raceway systems at the River Bend site, as cable and equipment installations have not yet been initiated. Construction Method Procedure (CMP) 9.4-3.76, "Electrical Raceway Installation," was reviewed, as well as the Stone and Webster Construction Specification 248.000, "Electrical Installation."

This portion of the inspection was initiated with the review of selected qualifications for individuals performing functions assigned by Field Quality Control (FQC). Eight of fourteen FQC electrical inspectors certification and qualification records were examined. From this review, the NRC inspector determined that six of the inspectors met the requirements of Quality Assurance Directive (QAD) 2.5, Revision C, "Qualification and Certification of Personnel Performing Quality Assurance Activities." However, two of the inspectors satisfied the requirements of the procedure QAD 2.5, but were certified as Level II inspectors within the civil discipline, and had little electrical discipline experience.

Both of the individuals had recently transferred to the electrical discipline, and were completing the requirements necessary to satisfy the Job Proficiency Guide. In response to a violation identified in NRC Inspection Report 50-458/80-05, the licensee stated, (as documented in their September 10, 1980, letter), "The word 'qualified' means personnel were trained for the specific task and had demonstrated sufficient capability in performance of the task as documented in accordance with the Job Proficiency Guide." Neither of these individuals had yet been certified as Level II electrical inspectors in accordance with ANSI N45.2.6-1978, "Qualification of Nuclear Power Plant Inspection, Examination, and Testing Personnel," requirements.

The NRC inspector emphasized that the tasks to which these individuals were to be assigned should be similar to the tasks performed within their previous discipline until, by training and experience, they can fully satisfy the requirements of ANSI N45.2.6-1978.

FQC electrical inspection personnel were checked against the current FQC training matrix to ensure their proper qualification in accordance with their assigned tasks.

Control and identification of materials used in Category I applications was reviewed (also reference paragraph 5). Powerstrut and unistrut material was generally ordered to Category I requirements. However, licensee and contractor representatives cited several examples where these materials had been ordered to Category II requirements, but were in themselves visibly discernible from any of the Category I applications. Thus, these types of powerstrut materials used in the Category II applications can never be used in Category I applications.

Various colors were observed to be applied to A325 bolts used in electrical applications. Contractor representatives assured that all of these bolts were ordered to Category I requirements, but because of various chemical compositions, these bolts were various colors to ensure proper mating of similar A325 nuts and A325 bolts (e.g., for example, to prevent mating a chromium bolt with a galvanized nut).

The Electrical Cable Schedule Information System was discussed with FQC representatives, and a summary of raceway installation practices (both current and future) were "walked-through" with the NRC inspector. Field applied studs are to be installed in accordance with Specification 210.880, drilled in expansion type concrete anchors are to be installed in accordance with Specification 210.371, and all other raceway materials that have Category I applications are to be installed in accordance with the applicable drawing under the specified requirements in Specification 248.000.

The NRC inspector reviewed the applicable inspection plan for raceway installations and applicable site procedures. Installation of raceways was observed.

No violations or deviations were identified.

(2) Qualification of Electrical Cable and Electrical Equipment

The NRC inspector reviewed documentation and requirements applicable to electrical cable and electrical equipment qualification at the River Bend site. The guidance given in NUREG-0588, "Interim Staff Position on Environmental Qualification of Safety-Related Electrical Equipment," was followed.

Two matters relative to electrical qualification have previously been discussed within the text of this report. Another matter involves Class 1E qualification of electrical cable splices within Category I systems. A review of site specification requirements indicates there to be no qualification requirements imposed on proposed procurement of cable splice kits. The River Bend FSAR states that "Class 1E splices will be used inside the Reactor Building." The NRC inspector needs to ensure that these "kits" meet the requirements of IEEE 383-1974, as well as the requirements imposed by IEEE 323-1974, and that this criteria is properly imposed by site specification requirements. Thus, this matter is also considered to be unresolved.

The NRC inspector also reviewed several audits performed by Gulf States Utilities Quality Assurance Department. Discussions were held with individuals involved and the findings discussed.

No violations or deviations were identified.

7. Instrumentation Systems

Essentially, there is very little site activity with regard to instrumentation systems. Most of the equipment is in production in the vendor shop, with very little having been received at the site.

The NRC inspector reviewed Section 7.1 of the FSAR and confirmed in Section 7.1.2.3, "Conformance to IEEE Standards," that the design and qualification of all Class 1E instrumemtation equipment conform to the requirements of IEEE 323-1974, "General Guide for Qualifying Class 1E Equipment for Nuclear Power Generating Stations."

No violations or deviations were identified.

8. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, violations, or deviations. Four such items have been discussed within this report. They will be entitled as follows in future discussions:

Paragraph 5 - "Traceability of Structural Steel Shapes"

Paragraph 6B - "Extent of FSAR Commitment to Regulatory Guide 1.131"

Paragraph 6B - "Qualification of HPCS Electric Equipment with Regard to IEEE 323-1974 Commitments"

Paragraph 6B.2 - "Qualification of Class 1E Splices"

9. Management Interviews

The NRC inspector met with one or more of the persons identified in paragraph 1 at various times during the inspection period. An exit meeting was held on February 18, 1982, to discuss various findings and observations made during the inspection period.