

APPENDIX B

U. S. NUCLEAR REGULATORY COMMISSION  
REGION IV

NRC Inspection Report: 50-458/85-69

License: NPF-40

Docket: 50-458

Licensee: Gulf States Utilities Company (GSU)  
P. O. Box 2951  
Beaumont, Texas 77704

Facility Name: River Bend Station (RBS)

Inspection At: River Bend Station, St. Francisville, Louisiana

Inspection Conducted: September 16 through October 31, 1985

Inspectors:

Dwight D. Chamberlain   
D. D. Chamberlain, Senior Resident Inspector  
(pars. 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10)

11-7-85  
Date

W. B. Jones   
W. B. Jones, Resident Inspector  
(pars. 2, 3, 9, and 10)

11-7-85  
Date

R. P. Mullikin   
R. P. Mullikin, Reactor Inspector  
(pars. 2 and 3)

11/19/85  
Date

Approved:

J. E. Jandon   
J. E. Jandon, Chief, Project Section A,  
Reactor Projects Branch

11/18/85  
Date

Inspection Summary

Inspection Conducted September 16 through October 31, 1985 (Report 50-458/85-69)

Areas Inspected: Routine, unannounced inspection of licensee action on previous inspection findings, status of facility operating license conditions, site tours, initial fuel loading witness, control and use of field change notices, licensee quality concern program review, initial criticality witness, licensee identified construction deficiency review, and surveillance testing baseline witness. The inspection involved 510 inspector-hours onsite by three NRC inspectors.

Results: Within the areas inspected, two violations were issued in the area of control and use of field change notices (failure of document control program and improper use of a field change notice, paragraph 6).

DETAILS1. Persons ContactedPrincipal Licensee Employees

W. H. Cahill, Jr., Senior Vice President, River Bend Nuclear Group  
 \*T. C. Crouse, Manager, Quality Assurance (QA)  
 J. C. Deddens, Vice President, River Bend Nuclear Group  
 D. R. Derbonne, Supervisor, Startup and Test  
 S. Finnegan, Control Operating Foreman  
 P. E. Freehill, Superintendent, Startup and Test  
 D. R. Gipson, Assistant Plant Manager, Operations  
 P. D. Graham, Assistant Plant Manager, Services  
 D. Hartz, Shift Supervisor, Operations  
 R. W. Helmick, Director, Projects  
 B. D. Hey, Licensing Engineer  
 K. C. Hodges, Supervisor, Quality Systems  
 R. Jackson, Shift Supervisor, Operations  
 D. Jernigan, Engineer, Startup and Test  
 G. R. Kimmell, Supervisor, Operations QA  
 \*R. King, Engineer, Licensing  
 A. D. Kowalczyk, Assistant Plant Manager, Maintenance  
 \*D. J. Krueger, Supervisor, Engineering Administration  
 T. Lacy, Shift Supervisor, Operations  
 \*H. M. McClellan, Senior Compliance Analyst  
 \*E. R. Oswood, Engineer, QA  
 \*G. A. Patrissi, Engineer, QA  
 T. L. Plunkett, Plant Manager  
 S. R. Radebaugh, Assistant Superintendent, Startup and Test  
 \*D. Reynerson, Director, Nuclear Plant Engineering  
 \*J. E. Spivey, Engineer, QA  
 R. B. Stafford, Director, Quality Services  
 \*P. F. Tomlinson, Director, Operation QA  
 C. Warren, Shift Supervisor, Operations

Stone and Webster

F. W. Finger, III, Project Manager, PTO  
 \*B. R. Hall, Assistant Superintendent, Field Quality Control  
 R. L. Spence, Superintendent, Field Quality Control

The NRC senior resident inspector (SRI) also interviewed additional licensee, Stone and Webster (S&W), and other contractor personnel during the inspection period.

\*Denotes those persons that attended the exit interview conducted on November 7, 1985.

## 2. Licensee Action on Previous Inspection Findings

- a. (Closed) Open Item (458/8551-03): Resolution of discrepancies with cleanliness classification procedures for plant systems.

The SRI reviewed revised procedures ADM-0018, "Plant Housekeeping and Cleanness Control," and GMP-0062, "General Maintenance Cleaning and Cleanliness." Procedure MSP-0013, "Cleanness and Cleaning Methods," was canceled on October 14, 1985. The previously noted discrepancies appear to have been resolved with the imposition of the following requirements:

- ADM-0018 now requires the assistant plant manager technical services (APM-S) or designee to assign housekeeping zone designations and cleanliness grades to fluid systems and associated components.
- ADM-0018 and GMP-0062 now have identical definitions for grades of cleanliness.
- ADM-0018 now requires quality control (QC) personnel to perform cleanliness inspections and QC personnel are qualified in accordance with ANSI N45.2.6.

This item is closed.

- b. (Closed) Open Item (458/8551-04): Removal of equipment tags which are not required for the operational phase activities.

A significant amount of effort has been expended to remove tags remaining from construction and preoperational testing activities. GSU opened and inspected over 1000 safety-related electrical panels and dispositioned all tags identified. All known QC related tags have been dispositioned and removed or they have been determined to have no effect on plant operability. An ongoing program is in place to remove green jurisdictional tags (non QC related) and much progress has been made. The containment was observed by the SRI to be relatively free of tags. Operations personnel have been instructed to remove green jurisdictional tags during daily activities and extra nuclear equipment operators are scheduled each week to remove tags.

This item is closed.

- c. (Open) Open Item (458/8551-06): Verify the implementation of administrative controls for a short-term solution and monitor the engineering evaluation for a potential long-term solution to the spurious trip problem.

Procedures that require installing the calibration read out assembly or removing a card from a card file have been revised to include the following precautions and limitations:

- . The other channels which may be affected as a result of performing the subject procedure, have been identified.
- . The prerequisites section of the subject procedures require the technician performing the procedure to inform the nuclear control operator (NCO) of the added precautions and requires signoff acknowledgment by the NCO.

This completes the implementation of administrative controls for a short-term solution to the spurious trip problem.

In addition, operations and instrument personnel have been instructed to initiate a Condition Report when any unexpected trip occurs during the performance of surveillance test procedures. After approximately 6 months of operating experience, the Condition Reports will be evaluated to determine any need for further action.

This item will remain open pending the operating experience evaluation.

- d. (Closed) Open Item (458/8558-29): ANSI N45.2.1.-1973 requires that cleanliness inspectors be qualified. Procedure GMP-0062 is not clear on what qualifications inspectors should meet and who (by title) should sign (verify) inspections.

Procedure ADM-0018 requires QC personnel to perform cleanliness inspection in accordance with the applicable QC inspection plans and QC personnel are qualified in accordance with ANSI N45.2.6. Procedure GMP-0062 requires the performer of the cleaning activity to sign for a verification of the completed cleaning.

This item is closed.

- e. (Closed) Open Item (458/8562-02): Completion of a General Electric (GE) lost parts analysis.

During initial core loading at River Bend, certain small parts were lost from the fuel grapple in two separate incidents. Also, after all fuel was loaded, one of the local area underwater lights overheated, partially melting the lens and fracturing the glass dome over the lamp. GE performed analysis to address any safety concerns related to the loss of these parts. The conclusion from analysis was the safe reactor operation is not compromised by the presence of the lost parts in the reactor vessel.

This item is closed.

- f. (Closed) Open Item (458/8562-03): Review of the licensee actions to identify the cause of the start failure of Division I diesel generator.

The licensee issued a Condition Report (CR 85-0275) on August 27, 1985, which described the Division I diesel generator start failure which occurred during an attempted performance of Surveillance Test Procedure STP-309-0601. The licensee's investigation of this concluded that the air start isolation block valves may have been throttled at the time of the attempted start. The procedure requires throttling of one valve and an air roll of the engine. After the air roll the block valve must be fully opened. They postulate that one or both of the air start valves may have been left throttled due to an operator error. The investigation revealed no problem with the air start system and several subsequent starts were successfully completed. The licensee initiated steps to clearly label the air start block valves and procedures clearly indicate that the block valves should be fully open. All operations personnel have been informed of the potential impact of the air start block valves being improperly positioned.

This item is closed.

- g. (Closed) Open Item (458/8406-20): Verification that plant airflow patterns are from areas of potentially low radioactive concentrations to areas of potentially high radioactive concentrations.

This open item is the same issue as that identified as license condition 2.c. The review and subsequent closure of license condition 2.c. by the NRC inspector, as detailed in Section 3, "Status of Facility Operating License Conditions," of this report, addresses this item.

This item is closed.

- h. (Closed) Open Item (458/8527-03)(License Condition 3.a. Part 2): This item required the completion of all Appendix R fire barrier wrap. The NRC inspector reviewed completed E&DCR P-22495A for fire wrap in the control building. Also, the physical installation of selected fire wrap assemblies were inspected for adequacy. The work inspected appeared to be done in a neat and craftsmanlike manner. All required Appendix R fire wrap was determined to be complete with the exception of a short (approximately 12 feet) conduit run for the spent fuel pool cooling system. This section, however, was made a limiting condition for operation in the Technical Specification and subsequently, GSU has verbally stated fire wrap has been completed. This open item and part 2 of license condition 3.a. is closed.



### 3. Status of Facility Operating License Conditions

Facility Operating License NPF-40 for River Bend Station was issued on August 29, 1985, and, pending Commission approval, operation is restricted to power levels not to exceed 5% of rated power. Attachment 1 to this license contains items to be completed to the satisfaction of NRC Region IV prior to achieving certain operational conditions. The following status is provided for the Attachment 1 license conditions:

- a. (Closed) License Condition 1.a.: Complete the testing of the off-gas system and the off-gas vault refrigeration system prior to installing the reactor vessel head.

The NRC inspectors reviewed the completed preoperational test results for the off-gas system and the off-gas vault refrigeration system and a system walkdown was conducted to verify completion of this license condition. Noted test exceptions do not appear to affect system operability and all open test exceptions are being dispositioned in accordance with the approved startup program. The NRC inspectors concluded that the completed testing satisfies the requirements of license condition 1.a.

This license condition is closed.

- b. (Closed) License Condition 2.c.: Verification that plant air flow characteristics are from areas of potentially low radioactive concentrations to areas of potentially high radioactive concentrations.

The NRC regional inspector reviewed Preoperational/Acceptance Test Procedure 1-PT-400-2, Revision 0, "Safety Related Ventilation System Environmental Design and Technical Requirements." This review, documented in NRC Inspection Report 50-458/85-70, verifies that the above procedure is adequate to verify that plant air flow characteristics are from areas of potentially low radioactive concentrations to areas of potentially high radioactive concentrations.

Following the Joint Test Group's (JTG) review and approval of the test results with exceptions, the NRC resident inspector (RI) reviewed both the test results and test exceptions. The RI determined that final resolution of the identified test exceptions will not alter this air flow pattern.

This license condition is closed.

- c. (Closed) License Condition 2.d.: Place in service as tested and calibrated, including installed process instrumentation, the following panels: turbine plant sampling, condensate demineralization, and radwaste sampling, prior to achieving initial criticality.

This license condition was reviewed during a previous NRC inspection (NRC Inspection Report 50-458/85-70) and the only remaining action required was the placing in service as tested and calibrated of three conductivity cells and one ph cell. The SRI was subsequently provided documented evidence of the operability of these four cells to complete the required action for license condition 2.d.

This license condition is closed.

- d. (Closed) License Condition 2.e.: Testing of service water modifications and completion of Technical Specification Surveillance Tests 4.8.1.1.f.2 through 4.8.1.1.f.7 and 4.8.1.1.f.9 through 4.8.1.1.f.12 for the TDI diesel generators.

The NRC RI reviewed the special situation test and surveillance test results for the TDI diesel generators to verify that: (1) deficiencies identified during the test had been adequately addressed and corrective action completed where required, (2) the licensee had correctly analyzed the test data and verified that it met the established acceptance criteria, and (3) the test results had been reviewed and accepted by the appropriate plant staff organizations.

The following test packages were reviewed:

STP-309-601	Revision 2	Div. I 18-month ECCS Test
TP-85 15	Revision 0	Div. I ECCS Retest
STP-309-602	Revision 1	Div. II 18-month ECCS Test
1-SST-41	Revision 0	Diesel Unloading Modification

The NRC RI determined that each of the above test packages were properly reviewed by the licensee and met the applicable acceptance criteria.

This license condition is closed.

- e. (Closed) License Condition 3.c.: Complete modifications to prevent draining the suppression pool to the auxiliary building in the event of a post LOCA pump or valve seal failure in an emergency core cooling system suction line.

The NRC RI reviewed the suppression pool pump back system (SPPS) design and verified the following modifications have been incorporated into the system.

- (1) The two commercial grade sump level switches were replaced with four Class 1E level elements.
- (2) Two Class 1E air-operated isolation valves and one Class 1E motor-operated isolation valve were added.



- (3) Two ASME III, Class 2 check valves for containment isolation have been installed.
- (4) The commercial grade pump motors were upgraded to Class 1E pump motors.
- (5) The pump assemblies are qualified for port seismic operation based on the results of the seismic analysis performed.

In addition, the NRC RI reviewed the test package for Special Situation Test 1-SST-47, "Auxiliary Building Crescent Room Floor Drain System," Revision 0, which included the retest per 1-G-CAL-01, 1-G-CAL-02, and 1-G-CAL-12. These tests adequately demonstrated the SPPS capability to collect drainage using the auxiliary building crescent room floor drain system and route the drainage to either the radioactive liquid waste system or the suppression pool. All identified test exceptions to this system have been resolved.

Finally, the NRC RI reviewed Temporary Change Notice (TCN) 85-4035 to System Operating Procedure SOP-0104, "Floor and Equipment Drain System," Revision 1. The RI determined that this procedure provides adequate direction for the operator to determine when and how the SPPS should be realigned from the radwaste system to the suppression pool following a LOCA with subsequent passive failure of a ECCS pump or valve seal.

This license condition is closed.

- f. (Closed) License Condition 3.a. (Part 1): Testing of CO<sub>2</sub> fire protection system for the turbine generator prior to exceeding 5% rated power.

The NRC inspector reviewed the results of preoperational test PT-250-16, "Turbine CO<sub>2</sub> Fire Protection System," completed on September 24, 1985. The test was found to be complete and acceptable with no open exceptions.

Part 1 of license condition 3.a. is closed.

- g. (Closed) License Condition 3.a.(Part 2): Fire wrapping of electrical raceways in the control building prior to exceeding 5% rated power.

This license condition is closed in paragraph 2 of this report along with open item 458/8527-03.

#### 4. Site Tours

The SRI toured areas of the site during the inspection period to gain knowledge of the plant and to observe general job practices. The tours conducted included a special tour with Mr. R. D. Martin (Regional

Administrator), Mr. E. H. Johnson (Deputy Director), and Mr. J. P. Jaudon (Section Chief) from the NRC Region IV office.

No violations or deviations were identified in this area of inspection.

5. Initial Fuel Loading Witness

This area of inspection was conducted to ascertain the conformance of the licensee to license and procedural requirements, to observe operating staff performance, and to ascertain the adequacy of fuel loading records during initial fuel loading at River Bend. The SRI observed fuel loading activities throughout the inspection period which culminated with the loading of the last fuel bundle on September 21, 1985. An incident occurred during fuel loading when an operator disconnected the fuel loading grapple from a fuel bundle with the bundle only partially inserted (about 2 feet) into the core. The bundle apparently caught on a ledge which gave the operator a slack cable indication and he assumed that the bundle was fully inserted. The licensee immediately suspended fuel load operations in order to evaluate the best method of lowering the stuck fuel bundle into the core. A rope was used to tie the bundle off and then an auxiliary crane was used to gently lower the bundle in the core. No apparent problems were noted during this operation, but the licensee later removed this fuel bundle and performed a quality control inspection for damage. The SRI witnessed the inspection and there was no apparent damage to the fuel bundle or the core location. Only slight scratches were noted on the fuel bundle channel. The inspection of this bundle was completed and the bundle was reinserted into the core. Although some problems were encountered during fuel loading, the SRI concluded that the licensee identified the problems and promptly took the required actions. The SRI also concluded that the licensee's approach to initial fuel loading activities was cautious.

No violations or deviations were identified in this area of inspection.

6. Control and Use of Field Change Notices

During the review of design changes that were being implemented for remote shutdown modifications, the SRI noted that the licensee design control program allowed the use of FCNs. A subsequent review of FCNs revealed that FCNs were being issued and design modifications were being implemented, but the FCNs were not being promptly posted against the affected document, and FCNs were not being distributed to the document control stations as required. This document control program failure was identified by the SRI as an apparent violation (458/8569-01). Also, the nuclear plant engineering procedure NPE-3-006, "River Bend Station Design and Modification Request Control Plan," states that a FCN does not alter the concept, function, or scope of the original modification; but the SRI identified FCN 85-0397-19 for the diesel generator output breaker which modified the function/control logic for remote shutdown operation from the diesel generator control panel. This improper use (control logic change) of a FCN was identified by the SRI as an apparent violation (458/8569-02).

## 7. Licensee Quality Concern Program Review

The licensee's quality concern program was described in NRC Inspection Report 50-458/85-25. The SRI continued to review licensee actions on individual cases. During review of one case it was noted that a Quality Assurance Finding Report (QAFR E-84-07-08-D) was issued on July 5, 1984, which required rework of three "bubble tight" ventilation system dampers. The dampers in question were 1HVR\*DMP99, 100, and 101. These dampers provide isolation of the main steam tunnel from the auxiliary building in the event of a high energy line break in the steam tunnel. The rework per the QAFR was supposed to assure that the dampers were bubble tight, but the response only stated that the dampers had been reinstalled under the supervision of a "Quality Air Design" vendor representative. The SRI was concerned that no inspection or test had been performed to verify the bubble tight closure of the dampers. The licensee stated that the dampers had been leak tested at the factory and new gaskets had been installed in the field, under vendor supervision, per the original installation specifications. However, in order to alleviate the SRI's concerns, the licensee quality control (QC) organization performed an inspection of the dampers on October 26, 1985, to determine if any gap existed between the blade of the dampers and the neoprene gasket sealing surface with the dampers in the closed position. The inspection revealed a maximum gap at the top of one damper of approximately 3/16" between blade and gasket with the damper closed manually. The inspection results were provided to S&W for an evaluation to determine if the dampers would fully close under design conditions. S&W performed a calculation (Attachment 2 to S&W Memorandum A-476, dated October 28, 1985) which concluded that the actual pressure on the damper blade at design condition was considerably higher (at least a factor of 2 to 1) than required to compress the gasket and make full face contact between the damper blade and gasket surface.

The SRI was provided a copy of the inspection results and the S&W calculation and it appears that damper closure at design conditions is addressed.

No violations or deviations were identified in this area of inspection.

## 9. Licensee Identified Construction Deficiency Review

The purpose of this inspection was to determine the adequacy of corrective actions taken by the licensee for construction deficiency DR-193, "Post-LOCA Pump and Valve Seal Failure in the Emergency Cooling System Suction Line," identified to the NRC pursuant to the requirements of 10 CFR 50.55(e). The NRC staff was initially notified of the deficiency report (DR) on December 14, 1984, and received notification of the corrective action taken in GSU's revised final report, dated November 1, 1985.

The licensee has modified the auxiliary building crescent room drains system to allow for the rerouting of collected drainage back to the suppression pool following a LOCA with a subsequent failure of ECCS pump

or valve seals. This system, designated as the suppression pool pump back system (SPPS), has been designed to protect against submergence of the ECCS motor operated valves at elevation 70 ft in the auxiliary building crescent room area and to restore suppression pool water inventory.

The NRC RI verified that: (a) the modifications made to this system were completed and properly tested to ensure the SPPS is capable of meeting its design criteria; and (b) these system operating procedures are adequate to instruct the operator as to when and how the SPPS should be used in the event of a LOCA with subsequent ECCS pump or valve seal failure. Details of this review are provided in Section 3, "Status of Facility Operating License Conditions," of this report as part of the closure of licence condition 3.c.

Finally, the RI verified that the licensee met the reporting requirements of 10 CFR 50.55(e) for this construction deficiency.

The deficiency report (DR-193) is closed.

#### 10. Surveillance Testing Baseline Witness

During this inspection period, the NRC RI observed the performance of Division I and Division II ECCS 18-month surveillance testing and verified that: (a) the personnel conducting the test were cognizant of the test acceptance criteria, precautions and prerequisites prior to beginning the test, (b) the test was accomplished in accordance with an approved procedure and the test procedure was used and signed off by personnel performing the test, and (c) data was collected and recorded as required by the test procedure.

The NRC RI witnessed the performance of the following surveillance test procedures:

STP-309-601	Revision 2	Div. I 18-Month ECCS Test
TP-85-15	Revision 0	Div. I ECCS Retest
STP-309-602	Revision 1	Div. II 18-Month ECCS Test

During the performance of STP-309-601, the NRC RI observed the partial draining of the reactor pressure vessel (RPV) to the suppression pool while the operator was securing the RHR "A" pump during restoration from the simulated ECCS signal. Specifically, on September 23, 1985, at approximately 0100 hours, the operator was realigning the RHR "A" pump suction from the shutdown cooling line to the suppression pool as required by Section 7.22 of the procedure. STEP 7.22.2 required the operator to close RHR "A" shutdown cooling suction valve (1E12\*MOO F006A) while the subsequent step required the operator to open RHR "A" suppression pool suction valve (1E12\*MOV F004A). The incident occurred when the operator opened the suppression pool suction valve without allowing sufficient time for the shutdown cooling suction valve to travel to its full closed position. This resulted in a flow path from the RPV through the shutdown cooling suction line to the suppression pool. The incident was terminated

in less than 99 seconds when the shutdown cooling suction valve reached the full closed position. The loss of water inventory from the RPV caused the level to drop below the level 3 scram setpoint (172.34" above top of active fuel), but did not reach the level 2 ECCS actuation setpoint. The operating staff implemented Abnormal Operating Procedure AOP-001, "Reactor Scram," which restored RPV level using control rod drive flow. Phone notification was made to the NRC Operations Center as required. The licensee's immediate corrective actions were to initiate Temporary Change Notice (TCN) 85-2882 and Condition Report 85-0356. TCN 85-2882 added a cautionary note to STP-309-601 between steps 7.22.2 and 7.22.3 which states, "Caution: 1E12\*MOVFO06A must be shut prior to opening 1E12\*MOVFO04A to prevent draining the RPV to the Suppression Pool." Condition Report 85-0356 identified the conditions which caused the incident and initiated an investigation and analysis of the event to determine the root cause and what further corrective actions will be required. A description of the corrective actions that have and will be taken to prevent recurrence of a similar event will be submitted to the NRC as part of Licensee Event Report (LER) 008. The NRC resident inspectors will review the licensee's corrective actions to this event as part of their normal LER follow up inspections.

#### 11. Exit Interview

An exit interview was conducted on November 7, 1985, with licensee representatives (identified in paragraph 1). During this interview, the SRI reviewed the scope and findings of the inspection. Since the Senior Vice President, Vice President or Plant Manager was not present at the exit meeting, the SRI scheduled a special meeting on November 8, 1985, with the Senior Vice President to review the findings of the inspection.