

APPENDIX B

U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV

NRC Inspection Report: 50-458/89-31      Operating License: NPF-47

Docket: 50-458

Licensee: Gulf States Utilities (GSU)  
P.O. Box 220  
St. Francisville, Louisiana 70775

Facility Name: River Bend Station (RBS)

Inspection At: RBS, St. Francisville, Louisiana

Inspection Conducted: July 1-31, 1989

Inspectors: E. J. Ford, Senior Resident Inspector  
W. B. Jones, Resident Inspector

Approved:

  
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G. L. Constable, Chief, Project Section C  
Division of Reactor Projects

8/29/89  
Date

Inspection Summary

Inspection Conducted July 1-31, 1989 (Report 50-458/89-31)

Areas Inspected: Routine, unannounced inspection of operational safety verification, maintenance and surveillance test observation, engineered safety features walkdown, emergency preparedness drill, and licensee action on a previous inspection finding.

Results: Within the areas inspected, one violation was identified (failure to implement adequate corrective action, paragraph 4). Two previous events involving Stones & Webster (S&W) Projects personnel were identified by the licensee to have occurred in part because of a breakdown in communication between S&W supervisors, craft foremen, and craft personnel. Corrective actions to ensure that craft personnel received the correct maintenance instructions were not implemented. This resulted in the loss of a station transformer on June 14, 1989, during the performance of a maintenance activity. The licensee's review of the subsequent event was not complete in that all the facts relevant were not ascertained. Specifically, the licensee did not determine where the communication breakdown occurred and whether the craftsman was cognizant of the status of the trip relay.

DETAILS

1. Persons Contacted

J. E. Booker, Manager, Oversight  
E. M. Cargill, Supervisor, Radiation Programs  
\*J. W. Cook, Lead Environmental Analyst, Nuclear Licensing  
\*T. C. Crouse, Manager, Quality Assurance (QA)  
\*J. C. Deddens, Senior Vice President, River Bend Nuclear Group  
D. R. Derbonne, Assistant Plant Manager, Maintenance  
L. A. England, Director Nuclear Licensing  
A. O. Fredieu, Supervisor, Operations  
P. E. Freehill, Outage Manager  
\*P. D. Graham, Executive Assistant, Senior Vice President  
D. E. Jernigan, Instrumentation and Control Supervisor  
\*R. J. King, Supervisor, Nuclear Licensing  
\*W. H. Odell, Manager, Administration  
\*T. F. Plunkett, Plant Manager  
\*J. P. Schippert, Assistant Plant Manager, Operations and Radwaste  
K. E. Suhrke, Manager, Project Management  
R. J. Vachon, Senior Compliance Analyst  
J. Venable, Assistant Operations Supervisor  
R. G. West, Assistant Plant Manager, Technical Services

The NRC also interviewed additional licensee personnel during the inspection period.

\*Denotes those persons that attended the exit interview conducted on August 10, 1989.

2. Plant Status

The reactor was taken critical on July 1, 1989, following a 2-day forced outage to repair an electrohydraulic control fluid leak on a combined intercept control valve. The main generator was synchronized to the grid the same day. Following repairs to one of the three reactor feedwater pumps, the reactor was operated at essentially full power through the end of the inspection period.

During the week of July 23, 1989, an increase in unidentified leakage was noted. The unidentified leakage increased at a linear rate to approximately 2.5 gpm at the end of the inspection period. The licensee planned to begin an orderly shutdown when the unidentified leakage reaches 4 gpm. The Technical Specification limit is 5 gpm. The licensee believed the leakage was coming from the recirculation "A" pump seal.

3. Operational Safety Verification (71707)

The inspectors observed operational activities throughout the inspection period and closely monitored operational events. Control room conduct and

activities were generally observed to be well controlled. Proper control room staffing was maintained and access to the control room was well controlled. Selected shift turnover meetings were observed and it was found that detailed information concerning plant status was being covered. Several control board walkdowns were conducted by the inspectors. In all cases, the responsible operators were cognizant as to why an alarm was lit and the reason for each plant configuration. Operational conditions and events, identified through discussions with the reactor operators and review of condition reports, were identified in the main control room log. Inoperable equipment identified during the main control board walkdowns were identified by the applicable limiting condition for operation.

The inspectors conducted several tours of accessible areas of the facility during this inspection period. General housekeeping practices have improved since the completion of the refueling outage. Walkdowns of the low pressure core spray, low pressure coolant injection, and high pressure core spray systems were conducted. This included verifying that the required valves were locked open and the associated power supplies for the electrical components were energized.

The inspectors verified that selected activities of the licensee's radiological program were implemented in conformance with facility policies, procedures, and regulatory requirements. Radiation and/or contaminated areas were properly posted and controlled. Radiation work permits contained appropriate information to ensure that work could be performed in a safe manner. During plant tours, the inspectors verified that selected very high radiation area access doors were locked and closed.

The inspectors observed security personnel perform their duties of personnel and package search. Personnel access was observed to be controlled in accordance with established procedures. The inspectors conducted site tours to ensure that compensatory posts were properly implemented as required because of equipment failure or degradation.

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

4. Maintenance Observation (62703)

During this inspection period, the inspector observed corrective maintenance activities on the Division I standby gas treatment system (GTS) and reviewed the maintenance work order (MWO) package associated with the installation of the Preferred "F" station transformer and its auxiliary components.

- o MWO R056336 was initiated to investigate and repair the Division I standby GTS fan motor (1GTS\*FN1A) supply breaker which was identified to have an inoperable charging motor. This condition was identified on July 24, 1989, and a prompt MWO request was initiated to troubleshoot the breaker. Prior to beginning work, the breaker was

logged out of service utilizing Clearance Number RB-1-89-2177. A quality control (QC) inspector was contacted prior to beginning work as is required for a prompt MWO. The QC inspector documented his inspection results in Inspection Report 89-IR-27270. Troubleshooting of the breaker identified that the charging motor was inoperable and the breaker subassembly appeared to be warped. The inoperable breaker was subsequently replaced with a rebuilt breaker. The functional/operability test was completed in accordance with Corrective Maintenance Procedure CMP-1023, "Maintenance and Functional Testing of G.E. 480 volt Switchgear Breaker," Revision 5. The inspectors are reviewing the breaker failure as part of the followup to Open Item 458/8813-02; which will remain open pending further NRC review.

- o MWO R125591 was initiated to replace the Preferred "B" station transformer and the associated support equipment with a new transformer designated as Preferred "F" station transformer. On May 29, 1989, the Preferred "B" station transformer failed when the operators attempted to energize the transformer. (An additional writeup of the Preferred "B" station transformer failure is provided in NRC Inspection Report 50-458/89-28.) Clearance No. RB-1-89-1855 was initiated on May 30, 1989, to ground the offsite power feed line to both the Preferred "B" and "D" station transformer. On June 12, 1989, a partial clearance release was granted to allow energizing the Preferred "D" station transformer. The loads on the Division II emergency bus were subsequently transferred to the Preferred "D" station transformer.

On June 13, 1989, a S&W craftsperson was dressing and relugging cables in Junction Box 1-JB9168. This junction box provides the terminator points for cables from the Preferred "F" station transformer control cabinet and the transformer relay cables. An intermediate junction box is provided between 1-JB9168 and the sudden pressure trip relay where the trip wires from the Preferred "D" station transformer are terminated. This establishes a parallel trip circuit from the same sudden pressure relay for both the Preferred "D" and "F" station transformers. Although the sudden pressure trip wire to 1-JB9168 had been determined, the wire end was taped and left energized. On June 14, 1989, while dressing a cable associated with the transformer sudden pressure trip relay, a trip of the Preferred "D" station transformer occurred. This resulted in a loss of offsite power to the Division II emergency bus and a start of the Division II emergency diesel generator.

The individual had cut through two cables on the relay side of the junction box, one of which was the sudden pressure trip. This actuated the sudden pressure trip relay and caused the supply breakers to the Preferred "D" and station transformer to open.

On June 12, 1989, following energizing of the Preferred "D" station transformer, a GSU representative instructed an S&W supervisor to

only land leads from the control cabinet to the junction box. The leads from the junction box to the plant relays were to be landed by GSU relay personnel. This instruction was not passed down to the S&W orange book craftsman performing the work. The individual was following the work instruction identified in MWO R125591. Step AK of the job plan instructed the worker to "Terminate all cables in the junction box (1-JB9168) and control cabinet per Step 6 of MR-89-0128 - GSU assist as necessary and may term in cont. cab." Two side notes to the instructions were: "Dressed and lugged only. Relay people to land," and "GSU to terminate control cabinet." No cautions were given to advise that the relay wires were energized.

The inspector reviewed two previous events involving S&W Projects personnel where apparent miscommunication resulted in events during maintenance activities. The first event occurred on March 22, 1989, when the incorrect circulating water system valve was removed resulting in 4,000-5,000 gallons of water entering the floor drain system. The second event occurred on March 24, 1989. This event involved the cutting of the incorrect residual heat removal test return spool inside the containment building. This second event is documented in Condition Report (CR) 89-0262.

The licensee reviewed the above two events and established corrective actions to prevent reoccurrence of the events. The corrective actions to be taken are described in the Block 10 response to CR 89-0262. The Block 10, "Investigation, Analysis, Corrective Action, Disposition Details, Work Instructions," corrective actions included:

- ° effective immediately, a verbal/written turnover between S&W supervision and all Orange Book Craft supervision will no longer be adequate;
- ° the S&W supervisor and the craft foreman will be required to assure that any component being worked on is the correct component and has been removed from service per all applicable GSU site procedures; and
- ° all work released MWO's in possession of S&W Projects have been revised for the addition of equipment identification hold points for QC verification regardless of QA category. In addition, all future MWO's, either processed or assigned to S&W Projects, will be routed through QC for the same verification.

During the review of the event, the inspector learned that verbal instructions between GSU personnel and S&W supervision were given for work associated with dressing, lugging, and landing leads between the control cabinet and the junction box only. This instruction was not given to the worker performing the activity. The licensee's investigation of the Preferred "D" station transformer trip did not determine where the subsequent breakdown in communications occurred.

The S&W supervisor and foreman did not assure that the correct component was being worked. Review of MWO R125591 revealed that the QC notification/review had been marked "N/A." This failure to implement the corrective actions from the previous two events was identified by the inspector as an apparent violation (458/8931-01).

Although implementation of previous corrective actions should have prevented the sudden pressure trip of the Preferred "D" station transformer, the inspector noted that the work controls should have been more extensive. Because the sudden pressure trip relay is a parallel for both the Preferred "F" and "D" station transformers, the failure to completely isolate the trip circuit from the maintenance activity provided the opportunity for the event to occur. The apparent inadequacies in the maintenance job plan were discussed with licensee management personnel. The adequacy of the job planning should be considered by the licensee in their response to the above violation.

5. Surveillance Test Observation (61726)

During this inspection period, the inspectors observed the performance of the following surveillance procedures:

- ° Surveillance Test Procedures STP-511-4501, "RPS/Isolation Actuation-MSLI-Main Steam Line Radiation-High Monthly CHFunctional (D17-K601A)"

This surveillance test procedure was performed on July 29, 1989, with the reactor at 100 percent thermal power. This monthly channel functional test is used to verify operability of the reactor protection system (RPS)/main steam line isolation (MSLI) main steam line high radiation instrumentation (D17-K601A). The surveillance test meets the Technical Specification requirements of Sections 4.3.1.1 and 4.3.2.1, Tables 4.3.1.1-1.7 and 4.3.2.1-1.2.b.

Prior to beginning the test, the main steam line area full power background radiation levels were obtained and used to calculate the desired upscale alarm and maximum upscale trip values. The inspector independently verified the minimum and maximum upscale alarm and trip values as being correct. The licensee's calculated minimum and maximum upscale alarm and trip values were then used to verify the instrument trip setpoints were within the required range.

During the performance of the surveillance test, the I&C technicians informed the operators when half scrams should be expected. The half scrams were quickly reset to minimize the time the plant was operated in this condition. The test was completed within 2 hours after placing the trip system in an inoperable status with one operable channel in the same trip system monitoring the same parameter as allowed by the Technical Specifications.

- ° STP-599-4201, "Loose Parts Monitoring System CRD Housing Monthly CHFunct, 18 Month CHCal (1LPM-NBE1A; 1LPM-NBI1A)"

STP-559-4203, "Loose Parts Monitoring System 1B33\*CO01A Suction Monthly CHFunct, 18 Month CHCal (1LPM-NBE1B; 1LPM-NBI2A)"

STP-511-4205, "Loose Parts Monitoring System Feedwater Inlet Monthly CHFunct, 18 Month CHCal (1LPM-NBE3A; 1LPM-NBI3A)"

STP-511-4207, "Loose Parts Monitoring System Main Steam Outlet Monthly CHFunct, 18 Month CHCal (1LPM-NBE4A; 1LPM-NBI4A)"

These monthly surveillance tests were performed with the reactor in Operational Condition 1. The tests satisfy the Technical Specification Section 4.3.7.9.b requirement to perform a channel functional test of the loose parts monitoring system instrumentation for the control rod drive (CRD) housing, reactor water cleanup system suction, feedwater inlet, and steam outlet piping.

The inspector discussed the procedures with the technicians who were able to explain the technical intent of the procedure and had a working knowledge of the involved plant system. The test equipment being utilized was verified to be within its calibration due date. The inspector noted that the control operating foreman (COF) had granted permission to perform the test, and the technicians conducted the test utilizing the latest revision of an approved procedure. Independent verification and lifted lead control were performed as required by General Maintenance Procedure (GMP)-0042, "Circuit Testing and Lifted Leads and Jumpers." The test results were reviewed and approved by the COF.

- ° STP-511-4503, "RPS/Isolation Actuation-MSLI-Main Steam Line Radiation-High Monthly CHFunct (D17-K601C)"

The inspector reviewed this surveillance test which was performed on July 30, 1989, with the reactor at 100 percent thermal power. This monthly channel functional test is used to verify operability of the RPS/MSLI main steam line high radiation instrumentation (D17-K601C). The surveillance test meets the Technical Specification requirements of Sections 4.3.1.1 and 4.3.2.1, Tables 4.3.1.1-1.7 and 4.3.2.1-1.2.6.

The inspector verified that the calculated values used to verify the as-found high radiation upscale alarms and trip setpoints were correct. The as-left setpoints were within the specified low and high value setpoints for the applicable alarm or trip. After completion of the surveillance test, the test results were reviewed and accepted by the COF.

No violations or deviations were identified in this inspection area.

6. Engineered Safety Feature System Walkdown (71710)

During this inspection period, the inspector performed a walkdown of the standby liquid control system (SLCS) with the plant in Operational Condition 1.

The inspector confirmed that the licensee's system lineup procedure matches plant drawings and the as-built configuration. The following controlled documents were used to make this confirmation:

- Station Operating Procedure (SOP)-0028, "Standby Liquid Control Sys #201," Revision 5, dated December 28, 1988.
- Engineering Piping and Instrumentation Diagram, System 201, "Standby Liquid Control System," dated November 9, 1987.

The inspector identified a problem with nomenclature on a field key switch panel. The need to properly identify key switch positions on Panels ISLS-PNL120 and -121 as well as to be consistent in use of panel nomenclature was discussed with the licensee. Appropriate corrective actions will be taken.

The inspectors made the following observations with regard to the SLCS:

- Electrical breakers were properly positioned and control boards in the main control room reflected the appropriate indications.
- Valves in the flow path were in the correct positions (as required by the SOP) as observed locally and confirmed at remote positions indications.
- System valves appeared to be installed correctly and did not exhibit packing leakage, bent stems, missing handwheels, or improper labeling.
- Hangers and supports were aligned correctly.
- Calibration dates on observed instruments were current.
- No prohibited ignition sources or flammable materials were present in the vicinity of the inspected system.
- Equipment area housekeeping was adequate and appropriate levels of cleanliness were maintained.

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

7. Emergency Preparedness Drill (82301)

On July 13, 1989, the licensee conducted an emergency preparedness drill. This drill was part of corrective actions to remedy weaknesses identified during an exercise previously conducted on March 1, 1989, and described in NRC Inspection Report 50-458/89-09. Significant among these weaknesses were the functions of command and control in the technical support center (TSC). Also at issue was the adequacy and timeliness of plant data and its availability for utilization by TSC staff.

During the drill, the inspector made observations in the control room, the TSC, the operations support center (OSC), and the plant simulator room.

Command and control functions in the TSC appeared to be exercised in a firm, authoritative, and productive manner. It was evident that the emergency director had placed a high priority on receiving timely plant status information and on reacting to that information by decisively dispatching plant personnel. The inspector also noted a take-charge manner displayed at the appropriate times by the TSC manager.

The inspector noted some minor information discrepancies on data display boards in the TSC. These discrepancies were identified by the licensee during the exercise and corrected. In general, the displayed information was adequate and timely and sufficient to correct a problem area previously identified.

The inspector observed that the OSC staffing appeared adequate, informational displays and status boards were maintained, logs appropriately reflected the latest information, and various instruments were calibrated within the due date.

In the past, the emergency drills originated in the main control room and utilized an exercise operating crew (in addition to the regular shift complement). This resulted in increased noise levels and traffic into the area because of the extra operators, the drill controllers and observers, and operations and maintenance support exercise personnel. This distracted the operating crew. Furthermore, the additional personnel (occasionally) in and around the operating panels created a vulnerability for inadvertent equipment actuation. This problem has been remedied by the licensee's use of the plant simulator as the exercise/drill point of origin. The result is minimal interference with real-time operation of the plant because of the drill, thus enhancing overall safety of the operating plant. The inspector confirmed these observations by discussion with the COF and inspector observations of the control room environment.

Although the simulator room was used to originate the drill, the simulator itself was not used. A licensee emergency preparedness representative explained that, in the future, the simulator will be utilized to the fullest extent technically possible.

As the drill progressed in the simulator room, it became necessary to utilize the emergency operating procedure (EOP) flow charts. As there was no other convenient location, they were placed on the work table thus covering up messages, procedures in use, Technical Specification, phones, etc. This could also be a problem in the main control room in an actual event. This inspector's observation has been noted by the licensee and solutions are being sought.

On July 12, 1989, the inspector attended the controllers meeting (prior to the drill) and on July 14, 1989, attended the postdrill meeting to monitor the process of problem self-identification and resolution.

Overall, personnel in all observed areas displayed a serious, professional attitude and appeared to be a team which would perform well in an emergency. Open items identified in NRC Inspection Report 50-458/89-09 will remain open pending further inspection.

No violations or deviations were identified in this area.

8. Licensee Action on Previous Inspection Findings (92702)

(Closed) Violation (458/8801-01): Failure to Initiate Timely Followup Review to Verify Completion of Corrective Action - A corrective action to correct a wiring discrepancy on standby gas treatment damper controls had not been taken 21 months after the needed corrective action was identified. The licensee responded by pointing out that the needed modification was not safety significant or needed for system operability. Therefore, other modification requests were given higher priority. In order to improve overall corrective actions, the licensee has developed River Bend Nuclear Procedure RBNP-0047, "Corrective Action Program," which combines elements of the overall corrective action program. The procedure establishes the requirement for timely closeout of corrective action documents.

Nonconformance-related modification requests (MRs) have been reviewed for implementation. The MRs have been presented to the work scope committee and either approved and scheduled or recommended for cancellation.

9. Exit Interview

An exit interview was conducted with licensee representatives identified in paragraph 1 on August 10, 1989. During this interview, the inspectors reviewed the scope and finding of the inspection. Other meetings between the inspectors and licensee management were held periodically during the inspection period to discuss identified concerns. The licensee did not identify as proprietary any information provided to, or reviewed by, the inspectors.