

APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-458/91-07

Operating License: NPF-47

Docket: 50-458

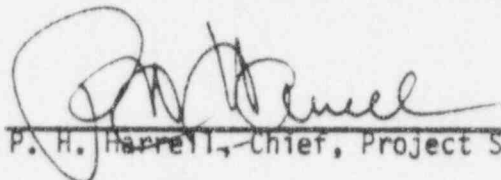
Licensee: Gulf States Utilities Company (GSU)
P.O. Box 220
St. Francisville, Louisiana 70775

Facility Name: River Bend Station (RBS)

Inspection At: RBS, St. Francisville, Louisiana

Inspection Conducted: January 16 through February 12, 1991

Inspectors: E. J. Ford, Senior Resident Inspector
D. P. Loveless, Resident Inspector

Approved: 

P. H. Harrell, Chief, Project Section C

2-21-91
Date

Inspection Summary

Inspection Conducted January 16 through February 12, 1991 (Report 50-458/91-07)

Areas Inspected: Routine, unannounced inspection of onsite followup of events, operational safety verification, maintenance and surveillance observations, complex surveillance, engineered safety features system walkdown, LER followup, and review of specific technical issues.

Results:

- ° Maintenance and surveillance observations indicated adequate performance and understanding of these activities by plant personnel.
- ° The engineered safety features system walkdown found only minor discrepancies that did not effect system operability. Overall system status was good and indicated attention to detail of workers in the plant.
- ° Eight events were reviewed involving missed or late surveillance activities. These either appeared to be isolated or were quickly corrected by the licensee. The absence of a 1990 event, specifically caused by a problem in the surveillance program, is evidence that previous licensee corrective actions have been adequate.

- ° The licensee displayed a proactive attitude in finding a faulty SGTS heater element prior to component failure. The licensee's actions were thorough and timely in determining the operability of the SGTS heater bank with one of nine heater elements inoperable.
- ° The RP and security programs were being adequately implemented.

DETAILS

1. Persons Contacted

*W. J. Beck, Supervisor, Balance of Plant Design
 *G. A. Bysfield, Supervisor, Control Systems
 *E. M. Cargill, Director, Radiation Programs
 *J. W. Cook, Technical Assistant, Licensing
 *W. L. Curran, Cajun Site Representative
 J. C. Deddens, Senior Vice President, RBNG
 *L. A. England, Director, Nuclear Licensing
 *S. J. Finnegan, Shift Supervisor (Acting Plant Manager)
 P. D. Graham, Plant Manager
 J. R. Hamilton, Director, Design Engineering
 *G. K. Henry, Director, Quality Assurance Operations
 *D. E. Jacobsen, Senior ISEG Engineer
 *G. R. Kimmell, Director, Quality Services
 *D. N. Lorring, Supervisor, Nuclear Licensing
 *R. C. Lundholm, Operations, Engineer
 *W. H. Odell, Manager, Oversight
 *K. E. Suhrke, General Manager, Engineering and Administration

*Denotes those persons that attended the exit interview conducted on February 12, 1991.

In addition to the above personnel, the inspectors contacted other personnel during this inspection period.

2. Plant Status

The plant was operated at essentially 100 percent power throughout this inspection period. Routine power reductions were performed to facilitate cleaning of water boxes and turbine valve testing.

3. Onsite Followup of Events (93702)

a. SGTS Heater Failure

On January 8, 1991, the licensee performed a thermographic inspection of Heater Termination Cabinet 1GTS*FLT1AH in the SGTS. This inspection identified that the pin temperature of a heater element termination was in excess of 400°F when the filter train was in operation, as documented in CR 91-0007. The licensee entered TS LCO Action Statement 3.6.5.4 because they believed that the heater bank was inoperable.

The licensee determined that the excessive temperatures were caused by a broken heater element connection pin. Initial attempts were made by the licensee to replace the heater; however, the spare heater element did not fit because of vendor modifications to the heater.

The licensee issued PMR 91-0002 on January 15, 1991, to isolate the power to the single element in the heater group of nine elements. The inspector reviewed the PMR and associated testing. The licensee had shown, by calculation and test, that eight heater elements would meet the operability requirements of the system without effecting the operation of its associated diesel generator.

The licensee displayed a proactive attitude in finding this deficiency prior to failure of the component. Actions following the identification were thorough and timely in determining the operability of the SGTS with one of the nine heater elements inoperable.

b. Recirculation Pump Seal Degradation

During this inspection period, the No. 1 seal on the B recirculation system pump degraded, as evidenced by an increase in the interstage pressure indication. The pressure, taken between the Nos. 1 and 2 seals, spiked several times following plant power reductions for water box cleaning and turbine valve testing.

On December 28, 1990, the pressure was logged at 750 psig. The pressure subsequently dropped, but never fully returned to a normal pressure of approximately 540 psig. This indicated that the No. 2 seal was taking up the additional pressure drop. The licensee has determined that a seal degradation trend is occurring.

By the end of this inspection period, the interstage pressure had increased to 790 psig. The licensee is closely monitoring the pressure because they have experienced two prior seal failures causing unplanned outages.

4. Operational Safety Verification (71707)

a. Control Room Observations

The inspectors verified that proper control room staffing was maintained, access to the control room was properly controlled, and operator attentiveness was commensurate with the plant configuration and activities in progress. The operators were observed adhering to approved procedures for the ongoing activities. Additionally, the inspectors regularly observed upper management in the control room.

The inspectors also verified that the licensee was operating the plant in a normal plant configuration as required by TS and, when abnormal conditions existed, that the operators were complying with the appropriate LCO action statements. The inspector verified that RCS leak rates were within the TS limits.

The inspectors observed instrumentation and recorder traces for abnormalities and verified the status of selected control room

annunciators to ensure that control room operators understood the status of the plant. Panel indications were reviewed for the nuclear instruments, emergency power sources, ERIS, and radiation monitors to ensure operability and operation within TS limits.

b. ECCS System Alignment

The inspectors walked down accessible portions of the SLCS and ADS to verify operability, flow path, water supply, power supply, and proper valve and breaker alignment.

In addition, the inspectors verified that a selected portion of the containment isolation valve lineup was correct.

c. Plant Tours

Tours of the diesel generator, auxiliary, control, fuel and turbine buildings, and exterior areas were conducted to observe plant equipment conditions, potential fire hazards, control of ignition sources, fluid leaks, excessive vibrations, missile hazards, and plant housekeeping and cleanliness conditions.

The inspectors verified that MWOs had been submitted as required and that followup activities and prioritization of work was accomplished by the licensee. The inspector visually inspected major components for leakage, proper lubrication, cooling water supply, and any general condition that might prevent fulfilling their functional requirements.

d. RP Observations

The inspectors observed RP practices and verified the implementation of the appropriate controls. On a routine basis, RWPs were reviewed and specific work activities were monitored to ensure that the activities were being conducted in accordance with the applicable RWPs. Workers were observed for proper monitoring upon exiting contaminated areas and the radiologically controlled area. Selected RP instruments were verified operable and calibration frequencies were reviewed.

e. Security Observations

In the course of the monthly activities, the inspectors observed implementation of the licensee's physical security program. The performance of various shifts of the security force was observed in the conduct of daily activities including protected and vital area access controls, searching of personnel and packages, escorting of visitors, badge issuance and retrieval, and patrols and compensatory posts.

In addition, the inspectors verified the integrity of protected and vital area barriers. The inspectors visited the central and secondary alarm stations, verified the protection of safeguards information, and observed testing of the security backup power system.

No problems were identified in this inspection area.

5. Maintenance Observation (62703)

On February 1, 1991, the inspector observed work being performed under MWO R149354. This MWO was issued to authorize the inspection and repair of Valve ICCS-RV208, a relief valve that provides protection for the turbine building closed cooling system piping upstream of the service air compressors. The work was being performed under CMP-9221, "Relief Valve Disassembly, Inspection, Rework and Reassembly."

The inspection identified that the seat pin was worn and caused the disk to lift slightly. Additionally, the seat was partially worn by the flow through the valve. The mechanic replaced the disk, seat pin, and valve spring, lapped the seat, and rebuilt the valve. The mechanic appeared to be knowledgeable of the work and the work requirements. The inspector verified that the work was properly authorized, the valve was properly tagged with Disassembled Components Identification and Control Tag 25514, when removed, and the stores requisition tickets were properly filled out and designated the appropriate parts.

This observation showed adequate performance and a good working knowledge of the procedure by the mechanics involved.

6. Surveillance Observation (61726)

On January 30, 1991, the inspector observed portions of the performance of STP-207-4550, "RCS - Identified and Unidentified Leakage Detection System - Drywell and Containment Equipment Drain and Drywell, Pedestal and Containment Floor Drain Sump Pump Flow Monitoring Monthly Check," Revision 4A. The purpose of this procedure is to perform a channel functional test of the RCS leakage detection system flow monitoring system instrumentation (1DER-KC174), as required by TS Sections 4.4.3.1.b and 3.4.3.2.b. The inspector discussed the contents and intent of the procedure with the technicians who demonstrated a good working knowledge. The inspector determined, by observation, that the required test equipment was being utilized and that it was properly calibrated as indicated by the calibration tags. It was also verified by the inspector that GMP-0042, "Circuit Testing and Lifted Leads and Jumpers," was being adhered to as required by Step 5.11 of the STP.

The inspector verified that, during a posttest data package review, the procedure met the requirements of the TS and that all acceptance criteria were met.

7. Complex Surveillance (61701)

As reported in NRC Inspection Report 50-458/90-29, the inspector observed a portion of the performance of STP-309-0602, "Division II 18-month ECCS Test," which involved a simulated loss of offsite power to Division II systems and the starting and loading of the Division II DG, as required by TS 4.8.1.1.f.4.a.1 and 4.8.1.1.f.4.a.2. The inspector concluded that testing personnel maintained control of the test, provided adequate coverage, collected appropriate data, and followed the procedure and that the equipment responded as designed. The inspector noted no problems.

The purpose of this part of the inspection was to ascertain that functional testing of the complex, safety-related equipment and systems was performed in accordance with regulatory requirements, applicable industry standards, and licensee procedures. The inspectors reviewed STP-309-0602, Revision 6, "Division II 18-Month Emergency Core Cooling System (ECCS) Test," and witnessed the related test activities as described above. The review indicated that the STP was performed in accordance with the TS and had clearly identified acceptance criteria. The inspector attended the pretest briefing. The test director covered the test objectives, individual test personnel assignments, and precautions and limitations effectively. All the acceptance criteria was satisfied. The inspector also verified the qualifications of the test personnel. The review indicated that the test personnel met the established training and qualification requirements.

8. Engineered Safety Feature System Walkdown (71710)

The inspector performed a walkdown of the accessible portions of the LPCS system. The inspector verified that SOP-0032, "Low Pressure Core Spray (Sys. #20C)," matched P&ID-27-5A, "Low Pressure Core Spray Engineering Diagram," and the as-built configuration. MCC 1E22*S002 was inspected for proper fusing, bolting, breaker alignment, and cleanliness.

During the walkdown, the inspector found the following items and discussed them with the licensee:

- ° Valves 1E21*VF033 and 1E21*V10 were not properly labeled. Operators initiated label requests to tag the valves.
- ° Valve 1E21*FTN003-V5, the low-side drain valve on the low-flow bypass flow transmitter, was not identified in the SOP nor was it labeled. The inspector noted that the valve appeared to be in the appropriate position.

The licensee determined that the valve should have been on the SOP. The valve was incorporated into SOP-0032 in TCN 91-0085. Additionally, a label request was initiated to tag the valve.

The inspector noted that, had this valve been misaligned, the main control room indication would not have shown a reading of zero, as

required by SOP-0032. Additionally, had this valve been misaligned, problems with the low-flow bypass valve (1E21*MOV-F011) would have been detected during surveillance testing.

- ° Valve 1CSL*FI121-V3B was found in the open position. SOP-0032 requires the valve to be closed. Operations personnel verified that the valve was open and closed it, stating that it had been stuck on the back seat.

The licensee documented this finding on CR 91-0048. They determined that the valve was opened during the performance of surveillance testing per STP-205-3301, "LPCS Valve Operability and Pump Flow Test."

The licensee noted that this discrepancy was not safety significant because SOP-0032 closes the root valves (1CSL*V37 and 1CSL*V38) for the flow indicator to isolate the indicator during normal operations. TCN 91-0085 was written to change SOP-0032 to agree with STP-205-3301.

- ° SOP-0032 caution sheet for Attachment 2 inadvertently labeled four common sensing lines as 1E51 (RCIC system), as opposed to 1E21 (LPCS system). This was corrected by the licensee with TCN 91-0093.

The above items did not effect the operability of the LPCS system and were considered minor in nature. Overall system status was found to be good and indicated appropriate attention to detail by the plant staff.

9. LER Followup (92700)

The following LERs were reviewed to verify that reportability requirements were fulfilled, corrective actions were accomplished, and actions were taken to prevent recurrence:

- a. (Closed) LER 88-002: Alternate rod insertion/anticipated transient without scram system initiation.

This event was previously reviewed, as documented in NRC Inspection Report 50-458/88-01. The report noted that the licensee had identified the root causes and had implemented corrective actions to prevent recurrence.

- b. (Closed) LER 88-010: TS surveillance requirement not met due to secondary containment doors and hatch omitted from the STP.

The licensee discovered that the surveillance requirement for TS 3.6.5 had not been properly performed for all required doors and equipment hatches due to a procedural omission. The cause of the omission was insufficient procedural guidance and inadequate administrative controls during procedure development and turnover from subcontractors.

The licensee revised the applicable STPs, performed a walkdown to identify all required doors and hatches, and a procedure history sampling review was performed on other operations STPs. Because other instrumentation, administrative controls, and tracking systems were available, the licensee determined that it was unlikely that secondary containment integrity was violated at any time when it was required.

The inspector verified that the historical sampling was completed and appeared to be adequate. The inspector reviewed STP-000-0201, "Monthly Operating Log," to verify that the current revision includes the doors and hatches in question.

- c. (Closed) LER 89-002: RWCU system isolation due to misdirected steam during maintenance.

This event was related to the isolation of the RWCU due to spiking of the thermocouple that senses local high temperatures. In this case, a steam leak from a valve was in the process of being stopped, by injection of stop-leak material, when the steam plume from the leak impinged on the thermocouple. The steam in the area caused a temperature increase, resulting in the isolation of the RWCU system.

To prevent recurrence of this type of event, the licensee made the personnel involved aware of the potential for ESF actuations when stop-leak material is being injected into steam systems. No similar events have occurred since this action was taken.

- d. (Closed) LER 89-003: Circuit breaker (ACB 022) testing not performed per TS due to inadequate STP.

The licensee discovered that the surveillance requirement for TS 3.3.4.4 had not been properly performed for all required ac circuits. The cause of the deficiency was determined by the licensee to be inadequate original procedure development by subcontractors and insufficient procedure review by the operations department. As corrective action, STP-000-0201 was changed to include Circuit Breaker ACB022 on Panel 1EJS*SWG2A for the polar crane.

Because other effective administrative controls and tracking systems were in effect, the licensee concluded that the circuit was not energized at any time other than allowed by the TS.

The inspector reviewed STP-000-0201 to ensure that all the circuits listed in TS 3.8.4.4 were included in the procedure. Additionally, the licensee confirmed that the biannual review process had been completed on all operations procedures and included a review for compliance with TS surveillance requirements. In March 1990 the licensee determined that, contrary to the specific wording of the commitment, maintenance and systems engineering were not performing

these additional reviews. The licensee is currently correcting this oversight and additional reviews in these areas are being accomplished.

This LER is an additional example of the poor procedural controls, as documented in LER 88-010 discussed above. However, this specific STP was not one selected in the original historical sampling review performed by the licensee. Additionally, inadequate subcontractor interface is no longer an issue since GSU is responsible for their own procedures. Following this additional finding, the licensee performed a more extensive review than had been done following the previous event. This was considered adequate corrective action.

- e. (Closed) LER 89-014: SSW system initiated due to operator error.

This event involved the inadvertent initiation of the SSW system when an operator depressed the standby service manual initiation pushbutton in lieu of the SSW vacuum release manual initiation switch. These two switches are located in close proximity. The operator's attention was focused on observing the stroke time of SSW valves, when he pushed the wrong button specified in the procedure.

To address this event, the licensee reinstructed the operator on the need to maintain acute awareness when performing switch manipulations. This event has not recurred during performance of this testing evolution.

- f. (Closed) LER 89-017: IRM surveillance test procedure not performed within the 3.25 allowable schedule limit per TS 4.0.2 due to human error.

The licensee determined that the reactor power IRM surveillance test procedure had not been performed within the allowable 3.25 schedule tolerance limit as required by TS 4.0.2. The tolerance limit had been exceeded on the first of the IRM STPs by 9 hours and 45 minutes. At no time did the performance of the IRM STPs exceed the allowable 1.25 schedule tolerance limit required for individual performances. The shift supervisor declared the IRMs inoperable in accordance with the TS. The applicable action statements were reviewed by the licensee and verified as having been met.

The licensee determined the root cause of this event to be an error in the scheduling of the IRM STPs. As corrective action, all manual changes to the schedule date and/or overdue dates made in the computerized scheduling system are now required to be independently verified.

Because there were no core alterations being performed when the 3.25 allowable limit was exceeded, all required control rods were already inserted and the IRMs were subsequently shown to be operable.

The inspectors routinely review surveillances and the surveillance program. During these routine reviews, the tracking system is observed. The inspector has noted that independent verification of manual changes is performed. The corrective action for this event appeared to be adequate.

- g. (Closed) LER 89-031: The failure to perform an STP prior to exceeding 25 percent reactor power was in violation of the TS.

During initial plant startup following RF-2, the licensee discovered that STP-509-0101, "Turbine Bypass Valve Operability," was not performed prior to exceeding 25 percent power, as required by TS Surveillance Requirement 4.7.9.a. Failure to perform this surveillance constituted a violation of TS Surveillance Requirement 4.0.4.

Operability of the turbine bypass valves was previously observed during testing of the safety/relief valves at 920 psig reactor pressure during the reactor startup. However, this was not documented on STP-509-0101. The STP was successfully performed at 35 percent reactor power. The COF failed to follow TS 3/4.7.9 and violated TS 4.0.4. This personnel error was caused by a misinterpretation of the TS by the COF.

As corrective action, the COF was counseled on this event. Subsequent performance of this surveillance demonstrated that the main turbine bypass system was operable throughout this period.

The inspector reviewed this LER, and determined that the event appeared to be an isolated case. Therefore, corrective action was sufficient.

- h. (Closed) LER 89-034: Failure to perform TS surveillance due to personnel error.

The licensee determined that the 10-hour run of Train B of the SGTS, as required by TS 4.6.5.4.a, had not been performed within the allowable surveillance tolerance. This caused Train B to be technically inoperable for a period of 26 days, which exceeded the 7-day limit of the TS action statement. Also during this period, Train A of the SGTS was inoperable for short periods. The immediate action taken by the shift supervisor was to complete the 10-hour run of Train B, restoring the train to operable status.

The root cause of this event has been determined by the licensee to be human error in the scheduling of STP-257-0201, "Standby Gas Treatment System Operability Test." Corrective action consisted of splitting the STP to provide better tracking for the completion of testing of individual trains, training operations personnel, training of the planning and scheduling group, and performing an additional weekly review on the previous weeks performances.

The licensee determined that the filter train could have performed its design safety function in the event of an accident.

The inspector reviewed STP-237-0201, "Standby Gas Treatment System Filter Train A Monthly Operability Test," and STP-257-0202, "Standby Gas Treatment System Filter Train B Monthly Operability Test," and determined that the procedures adequately tested each train. The training records were reviewed for the operations department personnel who are involved in the completion of an STP completion/exception form and for operational planning and scheduling on the surveillance test status and tracking system data entry verification process. Both training sessions were conducted by the STP scheduling group and attendance was properly documented. Although this event is similar to the event described in LER 89-017, as discussed above, the circumstances appeared to be isolated and the licensee took extensive corrective action.

1. (Closed) LER 89-039: Missed STP on upper containment airlock due to personnel error.

The licensee discovered that a required postmaintenance overall leak rate test on the upper containment airlock had not been performed after replacement of an inflatable seal was completed per MWO R133511.

On reviewing the MWO, it was determined that STP-057-3704, "Primary Containment Air Locks Overall Leakage Rate Test," had been inadvertently deleted and replaced with STP-057-5203, "Containment Personnel Air Lock Door Seal System 18-Month Leak Rate Test." The root cause was determined by the licensee to be an error by maintenance personnel. CMP-9249, "Personnel Air Locks Door Seal Requirement," was revised to require testing be specified in the acceptance criteria determination section of the procedure.

STP-057-3704 was satisfactorily performed as a normal surveillance at the start of RF-2. The licensee determined that the test results indicated that the overall leak rate would have been found satisfactory had the STP been performed when required.

The inspector reviewed CMP-9249 to verify that the required testing was specified in the procedure. This procedure requires the performance of STP-057-5203, STP-057-3705, "Primary Containment Air Locks Seal Leakage Rate Test," and STP-057-3704, as acceptance criteria following seal replacement on the containment air lock doors. The inspector verified that adequate corrective actions had been implemented.

- j. (Closed) LER 89-040: Surveillance tolerance on PVLCS testing exceeded.

The licensee determined that the surveillance test performed on the Division II PVLCS had not been performed within the allowable surveillance tolerance. This discrepancy was discovered after the successful completion of the STP.

During the investigation that followed completion of the STP, the licensee discovered that the calculated tolerance was incorrect. The investigation revealed that instead of the reported allowable tolerance ending on November 17, 1989, at 11:05 a.m., the actual tolerance ended at 9:50 a.m. At the time of discovery the STP had been completed and both Divisions of PVLCS were operable.

During the period in which Division II of PVLCS was inoperable, Division I of PVLCS remained operable. Because plant operation with one train of PVLCS inoperable is permitted by the TS, and the 7-day TS action statement was not exceeded, this event had low safety significance.

The inspector determined that this was an isolated case in that this is the only example of a miscalculated extension identified. The licensee's corrective action appeared to be adequate.

- k. (Closed) LER 90-012: ESF actuation due to failure of a voltage regulator in an MG set.

This event was related to the initiation of ESF components due to the failure of a voltage regulator in the RPS Train B MG set. The regulator failure caused Breakers 1C71*S003B and 1C71*S003D to open and resulted in a half scram and ESF actuation.

To address this problem, the licensee replaced the MG set voltage regulator and returned all equipment to normal operation. Since replacement of the regulator, additional problems have not been encountered.

- l. (Closed) LER 90-014: RPS actuation during reactor scram while testing the main turbine CIVs.

This event involved a reactor scram/RPS actuation due to a drop in EHC pressure while testing the CIVs. The licensee took corrective action to resolve this issue by modifications to the EHC system and by implementing additional administrative controls.

On December 12, 1990, the licensee experienced another reactor scram due to problems encountered with pressure problems in the EHC system while testing the CIVs. The event was documented in LER 90-047. The corrective actions taken by the licensee to address these events will be reviewed during routine closeout of LER 90-047; therefore, this LER is considered closed.

- m. (Closed) LER 90-015: RPS actuation when power was lost to an RPS bus.

This event involved actuation of the RPS due to a loss of power to an RPS bus caused by tripping of the supply breaker.

The licensee inspected the breaker and identified that the trip coil had failed. The breaker was replaced, tested, and returned to service. No additional problems have been encountered.

- n. (Closed) LER 90-016: ESF initiation due to voltage transient caused by an insulator fault on the grid.

This event involved the initiation of the CBVS due to a voltage transient caused by the failure of an insulator on the grid. The voltage transient caused Radiation Monitor 1RMS*RE13B, the control room local intake radiation monitor, to alarm. The alarm resulted in initiation of the CBVS and isolation of the control room.

To address this problem, the licensee installed Modifications 86-1113 and 86-1669 to make the radiation monitor less sensitive to supply voltage fluctuations. Since the installation of the modifications, additional problems with voltage fluctuations have not been encountered.

- o. (Closed) LER 90-019: RWCU isolation due to temperature switch failure.

This event was related to the isolation of the RWCU system due to failure of a Riley temperature trip unit.

The trip unit was replaced, calibrated, and functionally checked. Since replacement of the unit, additional problems have not occurred. The licensee routinely monitors the functionality of the unit by performance of an 18-month surveillance test.

- p. (Closed) LER 90-025: Failure to perform surveillances on drywell isolation valve due to omission of valve from the TS.

GSU determined that TS Surveillance Requirement 4.6.2.1.a had not been performed on a manual drywell isolation valve because it was omitted from TS Table 3.6.4-1.

The licensee discovered that Valve 1HVN*V543 had been inadvertently omitted from TS Table 3.6.4-1. This valve isolates chilled water returning from the drywell. The licensee determined that this caused an operation prohibited by TS because the valve should have been verified as closed once every 31 days.

The licensee revised the monthly operating log to require that Valve 1HVN*V543 be verified as closed once every 31 days and submitted a license amendment to add the valve to Table 3.6.4-1.

The inspector reviewed STP-000-0201, "Monthly Operating Log," and determined that Valve 1HVN*V543 was included in the list required to be position verified. Corrective actions associated with CR 90-0694 were reviewed. The licensee is currently reviewing all penetrations to determine any additional isolation valves that may have been inadvertently omitted from the TS. Additionally, a TS revision has been applied for by the licensee in a submittal, dated January 7, 1991, to add Valve 1HVN*V543 to Table 3.6.4-1.

This event appeared to be an isolated case and is not an example of a failure of the surveillance program. The surveillance program itself would not have picked up this missing valve because the requirement was not listed in the TS. The licensee corrective action was considered adequate.

- q. (Closed) LER 90-044: Isolation of various valves and dampers.

This event involved the operation of various valves and dampers when the incorrect power supply breaker was opened. The breaker was inadvertently opened when an operator attempted to install a clearance tag on the breaker for PLC 1SCM*XRC14B1, instead of PLC 1SCM*PNL01B, the PLC that was intended to be cleared.

This event was previously reviewed, as documented in NRC Inspection Report 50-458/90-33. The review included verification that the licensee had identified the root causes and had implemented the appropriate actions to prevent recurrence.

9 Review of Technical Issues (61726)

a. RBS Check Valve Program

On January 22, 1991, the licensee discussed the check valve program with the inspectors. The licensee performed a design review on approximately 350 ASME and important-to-reliability check valves. Each check valve was reviewed for proper sizing, location, and orientation. In addition, a maintenance history review was performed to identify those valves that had experienced a mechanical failure. When a valve was identified by the maintenance history as a problem valve, a design review was performed on the valve if it was not included in the original design review program. At the present time, 112 check valves have been identified as having failed one or more of the design review criteria or as problem valves and are included in the program. Of these 112 valves, approximately 82 are ASME valves.

In conjunction with the above reviews, the licensee completed an evaluation of the nonintrusive inspection techniques available. Based

upon this evaluation, GSU selected the acoustic emissions technique as the most acceptable technique for use at the RBS. GSU has developed a predictive maintenance program for those 112 check valves included in the program. GSU has scheduled completion of baseline acoustic emissions testing on the valves prior to the end of RF-5. Any valve with an acoustic signature that indicates that the valve is operating in a mode that could lead to premature failure will be disassembled and inspected at the next system or plant outage of sufficient duration. Once baseline data is obtained on the valves included in the program, each valve will be retested periodically and its new signature will be compared to baseline data. Any significant or unexplained change in the acoustic signature will result in disassembly and inspection of the valve at the next appropriate opportunity. The licensee anticipates testing approximately 33 percent of the valves in the program each cycle, subject to program results.

Initial acoustic testing started in March 1990. Twenty-nine of the valves in the program have been tested. Of these, 18 exhibited acoustic signatures indicative of operation in modes that could lead to excessive wear and/or premature failure. Fourteen of these eighteen were inspected during RF-3. Two of the four remaining valves were inspected during a recent system outage. The remaining two valves will be inspected during the next 2 months.

GSU has been active in the Nuclear Industry Check Valve Group formed in early 1989 and has a representative who is currently serving as the vice-chairman of the organization and was involved in drafting the group charter.

b. Oil Analysis Program

On January 29, 1991, the inspectors discussed the oil analysis program with the licensee and reviewed PEP-0040, "Insulating Oil Analysis Program," Revision 0. The purpose of the procedure is to provide the methods used to obtain, trend, and analyze insulating oils for determining the internal condition of oil-filled transformers and the physical condition of the oil. The program applies principally to predictive maintenance. The inspector also reviewed PEP-0039, "Lubricating Oil Analysis Program," Revision 3. The purpose of this procedure is to provide the methods used to obtain and analyze oil for the purpose of determining the internal condition of motors, engines, gear boxes, and other lubricated systems or components and the physical condition of lubricating oils.

The licensee stated that 47 pieces of equipment are monitored under the lubricating oil program and 27 transformers are monitored under the transformer oil program. The following types of analysis are performed: viscosity, particle count, water content, neutralization number, wear metals, ferromagnetic, and spectrographic. Both programs monitor safety-related equipment, such as the standby DGs

and ECCS pump motors, as well as nonsafety-related equipment. Adverse trends are reported to system engineering, maintenance, and/or operations, as applicable.

c. Vibration Program

The inspectors reviewed the GSU vibration program as presented by the licensee. Data is currently gathered at 3100 points on 315 pieces of equipment. The licensee expects the equipment monitored to increase by approximately 10 percent this year. The inspector also reviewed PEP-0003, "Vibration Program," Revision 2. The purpose of this procedure is to verify which plant equipment will be included in the vibration monitoring program and how the vibration data will be taken, reviewed, and reported.

The inspector noted that the vibration program the oil analysis program, the heat exchanger performance monitoring program, the thermography program, and the reactor heat rate monitoring program comprise the licensee's predictive maintenance program.

10. Exit Interview

An exit interview was conducted with licensee representatives identified in paragraph 1 on February 12, 1991. During this interview, the inspectors reviewed the scope and findings of the report. The licensee did not identify as proprietary, any information provided to, or reviewed by, the inspectors.

ATTACHMENT

LIST OF ACRONYMS AND INITIALISMS

ac	- alternating current
ADS	- automatic depressurization system
ASME	- American Society of Mechanical Engineers
CBVS	- control building ventilation system
CIV	- control intercept valve
COF	- control operating foreman
CMP	- construction method procedure
CR	- condition report
DG	- diesel generator
ECCS	- emergency core cooling system
EHC	- electro-hydraulic control
ERIS	- emergency response information system
ESF	- engineered safeguards feature
F	- Fahrenheit
GMP	- general maintenance procedures
GSU	- Gulf States Utilities
IRM	- intermediate range monitor
ISEG	- independent safety evaluation group
LCO	- limiting condition for operations
LER	- licensee event report
LPCS	- low-pressure core spray system
MG	- motor generator
MCC	- motor control center
MWO	- maintenance work order
NRC	- Nuclear Regulatory Commission
P&ID	- piping and instrumentation diagram
psig	- pounds per square inch, gauge
PLC	- power line conditioner
PMR	- prompt modification request
PVLCS	- penetration valve leakage control system
RBS	- River Bend Station
RBNG	- River Bend Nuclear Group
RCIC	- reactor core isolation cooling
RCS	- reactor coolant system
RP	- radiation protection
RPS	- reactor protection system
RWCU	- reactor water cleanup
RWP	- radiation work permit
SGTS	- standby gas treatment system
SLCS	- standby liquid control system
SOP	- system operating procedure
SSW	- station service water
STP	- surveillance test procedure
TCN	- temporary change notice
TS	- Technical Specification