

APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-458/91-01 Operating License: NPF-47

Docket: 50-458

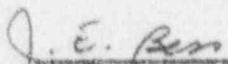
Licensee: Gulf State Utilities (GSU)
P.O. Box 220
St. Francisville, Louisiana

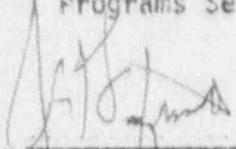
Facility Name: River Bend Nuclear Station (RBNS)

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

Inspection Conducted: January 28 through February 1, 1991

Inspectors:  3/14/91
D. K. Hunter, Senior Reactor Inspector Date
Operational Programs Section, Division of
Reactor Safety

 3/14/91
J. E. Bess, Reactor Inspector, Operational Date
Programs Section, Division of Reactor Safety

Approved:  3/14/91
J. E. Gagliardo, Chief, Operational Programs Date
Section, Division of Reactor Safety

Inspection Summary

Inspection Conducted January 28 through February 1, 1991 (Report 50-458/91-01)

Areas Inspected: Routine, announced inspection of previously identified inspection findings and the evaluation of the licensee's process for assessing identified problems.

Results: Within the area inspected, no violations or deviations were identified.

The root cause evaluations of some of the licensee event reports and condition reports that were reviewed were not sufficiently in-depth to identify the root cause for the errors that led to the event or condition being evaluated. Some evaluations also failed to document fully the basis for the identified root cause.

The inspection also revealed that the root cause analysis program did not specify the documentation required for the root cause technique selected, the evaluation results, and related quality activities.

The scope, content, independence, and documentation of the semiannual QA audits of actions taken to correct deficiencies affecting nuclear safety were generally weak and poorly documented.

DETAILS

1. PERSONS CONTACTED

GSU

- *J. C. Maher, Licensing Engineer
- *J. W. Cook, Technical Assistant, Licensing
- *J. W. Leavines, Supervisor, NSAG
- *G. A. Bysfield, APM-SE
- *G. S. Young, Reactor Engineering Supervisor
- *C. L. Miller, Senior Compliance Analyst
- *M. F. Sankorich, Manager, Engineering
- *J. E. Spivey, Jr., Senior QA Engineer/Audit Coordinator
- *J. E. Booker, Manager, Nuclear Industry Relations
- *R. J. Backen, Supervisor, QA Systems
- *J. R. Hamilton, Director, Design Engineer
- *P. D. Graham, Plant Manager
- *C. H. Greene, Senior Nuclear Engineer
- *J. J. Pruitt, Manager, Business Systems
- *T. C. Crouse, Manager, Administration
- *D. N. Lorfing, Supervisor, Licensing
- *W. H. Odell, Manager, Oversight
- *J. S. Miller, Director, Engineering Analysis
- *D. H. Wells, Senior Licensing Analyst
- *G. K. Henry, Director, Quality Operations
- *J. C. Deddens, Senior Vice-President
- G. B. Kimmell, Director, Quality Services
- I. M. Malik, Supervisor, Operations QA
- K. J. Gisdrosich, Supervisor, Quality Engineering
- R. P. Hebert, Senior QA Engineer

Other members of the technical and administrative staff were also contacted during the inspection.

*Denotes those staff members attending the management exit interview on February 1, 1991.

2. FOLLOWUP ON PREVIOUSLY IDENTIFIED INSPECTION FINDINGS (92702)

2.1 (Closed) Violation (458/8904-02)

Two instances had been identified in which licensee personnel had failed to follow control procedures that had been implemented in accordance with the requirements of River Bend Technical Specification 6.8.1 and Appendix A of Regulatory Guide 1.33. The violation included:

- (1) Mechanical maintenance foreman allowed maintenance crews to perform work under a maintenance work order prior to verifying that the clearance tags were satisfied. The clearance order was later observed to have been "back-timed" before commencement of the maintenance work.

- (2) Steps in a maintenance work order were marked as "not applicable" (N/A) without explanation.

The licensee corrective actions included revising Procedure ADM-0027, "Protective Tagging," Revision 9, to clarify the responsibilities of the "Clearance Holder." Also, Procedure ADM-0028, "Maintenance Work Order," Revision 10, was revised to require a written explanation by the workers for marking job steps as "N/A." These steps are required to be initialed by the worker and reviewed by the maintenance foreman.

The assistant plant manager - maintenance, issued a memorandum, dated October 10, 1989, in an effort to improve the compliance of the maintenance technicians with the existing station procedures. The maintenance management now reviews selected maintenance work order packages and deficiencies. Discussions were held with the supervisors, foremen, and craft persons to discuss improperly completed work packages.

Maintenance management has increased its attention to work activities through frequent inspections of work activities in progress. The observations of these inspection activities were documented on a "Maintenance Management Field Observation Program" checklist and discussed with each foreman immediately following the observation.

The inspector reviewed the revised procedures and verified that the revisions were in accordance with the licensee's corrective action plan. A review of the "Maintenance Field Observation" checklist verified that maintenance management personnel were observing and documenting maintenance work activities.

This violation is considered closed.

2.2 (Closed) Violation (458/8941-01 and 458/8941-02)

This violation related to the licensee's failure to provide sufficient maintenance work instructions and to perform post-maintenance testing of the "B" recirculation flow control valve (FCV) circuitry. The licensee's corrective actions included management personnel performing a safety significance evaluation utilizing the Updated Safety Analysis Report (USAR) reactivity and core flow limits. The evaluation included a FCV transient analysis, core flow analysis, loss of coolant and reactor stability analysis. The results of this evaluation indicated that precautions were taken to preclude or mitigate any potential reactivity changes.

Discussions revealed that the NRC concerns identified in the December 4, 1989, letter were evaluated. The evaluation identified no programmatic deficiencies, but several areas of improvement were identified including:

- (1) A procedure had been developed to provide guidance for troubleshooting of the recirculation FCV. The guidelines provided reference to all applicable drawings, loop calibration reports, vendor manuals, and generic troubleshooting activities.

- (2) Training on this event was completed for all appropriate site personnel.
- (3) The scram prevention form was revised to require the plant manager or his designee to approve of maintenance activities associated with main feedwater or main steam systems.

The inspector reviewed Procedure PEP-0049, Revision 0, "Recirculation Flow Control Valve Troubleshooting, System Tuning and Off Normal System Operations," and verified that the procedure addressed the concerns pertaining to the recirculation FCV system. The scram prevention form and other plant documentation were reviewed to verify that the changes had been implemented in accordance with the licensee corrective action plans.

This violation is considered closed.

3. SELF-ASSESSMENT CORRECTIVE ACTIONS (40500)

The inspectors reviewed selected problems that had been identified and dispositioned by the licensee to evaluate the process for assessing the plant problems that could impact on plant safety. The problems selected included licensee event reports (LERs) and condition reports (CRs). The last two semiannual QA audits of the results of actions taken to correct deficiencies were also reviewed.

The problem reports were reviewed to evaluate the assessment of the safety significance, the immediate corrective actions and operability determinations, the scope and content of the root cause analysis (as appropriate) identification of actions to prevent recurrence, the reporting and tracking of the items, and the licensee's overview process.

The problem reports, controlling procedures, QA audits, and other documentation reviewed are listed in the Attachment of this report.

3.1 Licensee Events Reports (LERs) and Condition Reports (CRs)

The inspectors reviewed selected LERs and CRs to determine that the identified root cause and corrective actions to prevent recurrence were appropriate and had been adequately documented.

LERs 90-031 (CR 90-849 and CR 90-854) and 90-038 (CR 90-1091)

In both instances, the root cause and corrective action to prevent recurrence included in the CRs (Block 13) simply referenced the associated LERs. LER 90-031 stated that the "event was caused by personnel error" and LER 90-038 stated "the root cause of this event was an error by design engineers in the preparation of a field change notice (FCN)." The documentation of the root cause determinations in the LERs/CRs did not contain adequate details to allow full assessment of the conclusions made in the report.

LER 90-043 (CR 90-1150)

The root cause and corrective action to prevent recurrence for the CR (Block 13) associated with LER 90-043 referenced the draft LER and the draft LER stated that "the root cause of this event was an error in the preparation of a retest procedure." The documentation of the root cause determination of this LER/CR did not contain adequate details to allow a full assessment of the statement contained in the LER.

CR 90-1111

The review of the CR revealed that the information contained in the licensee's safety assessment and investigation was not included in the root cause analysis and corrective action plan.

This event did not involve any specific safety-related systems or components; however, the inspectors were concerned that this CR appeared to indicate a lack of attention to detail associated with the CR investigation and analysis process.

The CR stated that during the functional testing of a valve, the plant operator (stationed at the MCC) attempted to open the valve. The motor rotation was noted as incorrect, causing the valve to close, rather than to open. This resulted in the worm gear being driven through the valve housing. The stated root cause of this event was the lack of proper communication between personnel (one stationed at the MCC and the other at the valve) performing the test. The CR did not address the events or the root cause of the incorrect motor rotation. Furthermore, it appeared that other causal factors could have been involved (such as improper labelling, incorrect electrical wiring, and previous maintenance activities); these other factors might have contributed to the valve failure to function correctly. The licensee's review of this CR did not address the concerns associated with the specific valve failure. Also, the CR did not address what corrective action the licensee implemented to avoid further valve failures.

CR 90-1181

The CR documented that the tubing downstream of RHR "A" loop sample valve (1RHS*V175) had apparently been cut. The review of the CR and the associated "investigation and analysis" documentation revealed that the licensee had determined that the tubing was "broken away, not cut." The licensee had also determined that a root cause analysis was not required. The documented licensee review did not address the potential release of reactor coolant from the sample line, if the RHS loop sample root valve had been opened inadvertently during the time the sample line was not intact. The inspector's concern was brought to the attention of the licensee for consideration.

Interviews revealed that the sample line was repaired under Maintenance Work Order No. 142910.

CR 90-1160

The licensee utilized the CR to document the use of the "A" LPCI injection flow path for normal shutdown cooling. The review of the associated "Investigation" documentation by the inspector revealed that the licensee had determined the usage factor for the injection flow path assuming an 80° F injection water temperature and a reactor coolant temperature of 120° F (40° F difference). The reactor coolant temperature (120°) was provided on the CR; however, the injection flow path water temperature was not documented on the CR. The lack of documentation of the injection water temperature on the CR and the 80° F assumed injection water temperature was not adequately addressed by the licensee in the CR. This inspector concern was brought to the attention of the licensee for consideration.

CR 90-1122

The appropriate block (Block 2) was not checked, to identify how the condition was detected (minor error - lack of attention to details).

CR 90-1115

The appropriate block (Block 8), provided to document the initial determination of reportability, was checked incorrectly. However, the event was reported and LER 90-041 was issued as a result of this specific deficiency (minor error - lack of attention to details).

CR 90-1167

The CR (Block 10) stated that the corrective actions to this problem included reidentifying existing plant equipment. However, the corrective action plan did not indicate whether drawings, control board labeling, and other documentation would also be reidentified to reflect the "as-built" condition of the plant (minor error - lack of attention to details).

Conclusion

As evidence by the above examples, the licensee's root cause analysis process does not always provide an in-depth evaluation of the root cause of the reported events or conditions. There was a lack of evidence that the root cause analysis process had identified the probable cause (root cause) for the personnel and procedural errors that were documented in some of the LER's and CR's reviewed. To provide some assurance that these personnel or procedural errors will not recur, the root cause analysis process should have determined if the errors were caused by such things as a lack of training, a lack of supervisors, an unacceptable attitude on the part of the individual, that the individual may have been overburdened in some manner, or other reasons.

The review of the licensee's root cause analysis process also revealed that the analysis and evaluation do not necessarily document the basis for the identified root cause. The inspectors reviewed the established program and implementing

procedures and found that the overall program controls did not include instructions to ensure that the performance of the root cause analysis had selected the appropriate analysis technique (five root cause analysis methods were addressed by the program) and the procedures did not require documentation of the root cause analysis/evaluation activities.

3.1.1 QA Audits - Corrective Actions

The inspector reviewed the two most recently completed QA audits of the results of actions taken to correct identified deficiencies required by Technical Specification 6.5.3.8.c. The audits were conducted by the QA organization under the cognizance of the nuclear review board.

The scope and content, including the audit checklists of Audit No. 90-03-1-CANC and Audit No. 90-09-1-CANC, were reviewed by the inspector to assess the adequacy of these audits. The inspector also reviewed selected QA audit finding reports which documented the findings from these audits.

The inspector identified the following concerns regarding QA audits of corrective action:

- o The last two QA audits of corrective actions, dated April 9, and October 12, 1990, did not include the assessment of the instrument-out-of-tolerance reports. Document review and interviews revealed that the guidance regarding the audits was not sufficiently comprehensive to ensure that deficiencies in all functional areas that might affect nuclear safety were addressed in the audits (e.g., health physics deficiency reports, security deficiency reports, etc.)
- o The audit reports for the corrective action audits contained audit evaluation statements (e.g., partially or fully satisfactory or unsatisfactory). The report did not clearly document the basis for these statements, in that, all corrective action programs had not been addressed in the audit.
- o The audits of the corrective actions system conducted by QA were not fully independent in that some of the auditors were auditing areas for which they had responsibility. The QA audits routinely addressed the corrective action documents issued by the QA groups including QA - operations, QA - engineering, and QA - programs.

The concerns were discussed with the licensee representatives, but no specific commitments were made to resolve the concerns.

4. EXIT MEETING

On February 1, 1991, the inspectors held an exit meeting with Mr. J. C. Deddens and other GSU personnel. The inspection scope and findings were discussed. Persons contacted by the inspectors and those who attended the exit meeting are listed in Section 1. The licensee did not identify as proprietary any of the material provided to or reviewed by the inspectors during this inspection.

ATTACHMENT

Documents Reviewed

Technical Specifications, Section 6.0

River Bend Station, USAR, Section 17.2, "Quality Assurance During Operations Phase"

Licensee Event Reports (LERs) and Condition Reports (CRs)

LER 90-031 (CR90-849 and 90-854), "Areas Omitted From the Hourly Fire Watch Patrols"

LER 90-038 (CR 90-1091), "Division 1 BOP Isolation"

LER 90-043 (CR 90-1150), "Unanticipated Actuation of the "A" Residual Heat Removal System and the Control Building Emergency Filter Train and Division 1 Diesel Generator Output Breaker Trip"

LER 90-035 (CR 90-1013), "Loss of Shutdown Cooling Due to an Engineer Failing to Recognize the Effects of Cable Removal"

LER 90-028 (CR 90-0827), "Reactor Protection System Actuation on High Level in the Scram Discharge Volume Due to Operator Error"

LER 90-041 (CR 90-1115), "Operability of Containment Isolation Valve Indeterminate Due to Improperly Installed Torque Switch"

Condition Reports (CRs)

CR 90-1181, "Tubing Downstream of RHR "A" Loop Sample Valve, 1RHS*V175, Has Apparently Been Cut"

CR 90-1149, "Instrument Isolation Valve (B 21-PTN076C-V2) Installed Backwards"

CR 90-1160, "Document the Use of the "A" LPCI Injection Flow Path for Shutdown Cooling"

CR 90-1117, "Failure of the Division 11 Control Building Ventilation to Start Due to Secured Dampers Noted Positioning"

CR 90-1111, "Limitorque Actuator Gearbox Broken During Functional Testing"

CR 90-1167, "Containment Equipment Drain Sump Pump Started With Its Supposed Supply Breaker Open"

CR 90-1174, "Day Tank Local Level Indicator Failed During Surveillance Testing"

QA Audit/Surveillance Findings (QAFR)

QAFR 090-01-013
QAFR P-90-06-023
QAFR 0-90-02-012
QAFR P-90-02-001

QA Audits - Corrective Actions

90-03-1-CANC, "RBS Corrective Actions and Nonconformance Control Process,"
April 9, 1990

QAFR P-90-03-024, "Documentation of Corrective Actions Taken"

QAFR P-90-03-029, "Extension Regarding Corrective Actions Responses"

90-09-1-CANC, "RBS Corrective Actions and Nonconformance Control Process,"
October 12, 1990

QAFR P-90-09-003, "Request for Extension of Corrective Actions Dates Due"

QAFR P-90-09-005, "Procedure Violations Regarding Corrective Actions Responses,
Extension and Verification"

QA Surveillance Reports

OS-90-06-21, "Security Program Document Control," June 21, 1990

OS-90-11-23, "Followup To OS-90-06-21"

OS-90-11-21, "High Radiation Area Violation (CR 90-1077)," November 10, 1990

OS-90-06-04, "Surveillance Test Performance (STP-602-3303)," June 28, 1990

OS-90-10-100, "Followup to OS-90-06-04," November 12, 1990

OS-90-04-24, "Preventive Maintenance," May 9, 1990

OS-90-09-03, "Followup to OS-90-24," September 18, 1990

OS-90-03-15, "Freeze Seal Line SWP-012-116-3," April 23, 1990

OS-90-01-41, "MOV Testing LE12*MOVFO24A," March 13, 1990

OS-89-06-39, "STP Performance MSIV 18 Monthly Calibrations," August 8, 1989

OS-90-09-17, "Followup to OS-89-06-39," September 29, 1990

OS-91-01-11, "Equipment ID and Labelling," January 24, 1991

Operations Quality Assurance Annual Surveillance Plan (1991, Revision 0)

River Bend Nuclear Procedures

RBNP-022, "Root Cause Analysis Program," Revision 0 (September 19, 1989)

RBNP-030, "Initiation and Processing of Condition Reports," Revision 0
(January 21) Revised Condition Report Program

RBNP-047, "Corrective Action Program," Revision 1

Procedures

ADM-0002, "Charter of the Facility Review Committee," Revision 11

Nuclear Review Board Manual, "River Bend Nuclear Group," Revision 4

Position Paper ISEG Operations (October 15, 1990)

RBNP Internal QA Audit Schedule - 1991

Training Lesson Plan, SP-096-0, "Root Cause Analysis" (July 5, 1988)
Root Cause Analysis Student Handout, Training Attendance Summaries

Weekly Condition Reports Status Meeting (open, overdue, and CRs greater than 1 year old):

January 4, 1991

January 11, 1991

January 18, 1991

January 25, 1991

Oversite Review Reports (October, November, and December)