

April 29, 1994

U. S. Nuclear Regulatory Commission
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Subject: Response to NRC Notices of Violation IR 93-31
River Bend Station - Unit 1/Docket No. 50-458
File No.: G9.5, G15.4.1

RBG- 40537

Gentlemen:

Pursuant to 10CFR2.201, please find in Attachments 2 and 3 Entergy Operations, Inc. (EOI) response to notices of violation described in NRC Inspection Report 93-31. In the cover letter for the NRC inspection report, the NRC expressed concern with work processes at River Bend Station (RBS). Attachment 1 to this letter addresses the actions being taken by EOI concerning work process improvements. In addition, EOI developed a long term performance improvement plan (LTIPI) which addresses issues identified in the inspection report. The LTIPI was submitted to the NRC on March 28, 1994.

The subject inspection was performed by Messrs. Ward Smith and Chris Skinner during December 19, 1993 through January 29, 1994, of activities authorized by NRC Operating License NPF-47 for River Bend Station - Unit 1. Should you have any questions, please contact Mr. O. P. Bulich at (504) 336-6251.

Sincerely,



James J. Fisicaro
Director - Nuclear Safety

JJF/jr
enclosures

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cc: U. S. Nuclear Regulatory Commission
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NRC Sr. Resident Inspector
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Attachment 1

REPLY TO NRC CONCERNS EXPRESSED IN COVER LETTER OF INSPECTION REPORT 50-458/9331

REFERENCE

Notice of Violation - Letter from A. B. Beach to John R. McGaha dated March 30, 1994.

RESPONSE

In the cover letter for NRC Inspection Report 50-458/93-31 dated March 30, 1994, the NRC expressed concern with work processes at River Bend Station (RBS). Management at RBS has recognized the same concerns and recently discussed our improvement plans with NRC management at the March 22, 1994 management meeting. Improving the work processes at RBS has been, and remains, a priority item of RBS management.

As outlined in the near-term performance improvement plan (NTPIP), RBS management is charged with the responsibility to improve plant performance by establishing effective processes. Management at RBS developed the NTPIP to foster ownership of plant problems and their solutions. To improve RBS work practices in operations and maintenance activities, the plan initiatives define the process of setting management expectations, improving work packages, ensuring procedural compliance, and improving plant chemistry and radiological controls. The NTPIP program initiatives reinforce management expectations involving planning, training and support from interfacing groups. Supervisors are also involved in monitoring and coaching of workers to predefined levels of performance requirements.

The NTPIP addresses effective work practices, including employee effectiveness in controlling operations, maintenance and other support activities. The NTPIP enhances the control of work to assure that work is performed in accordance with established procedures that are technically correct, easily understood and consistently used. The program objective is to reinforce expectations for procedure compliance and promote continuous improvement in the work documentation. The NTPIP also requires that methods be established for supervision to increase their time in direct observation of work activities.

Because RBS has experienced a number of personnel errors, one element of the NTPIP was developed to address human performance effectiveness. The plan recognizes that people need to be trained, not only in the processes and technology they apply in their daily activities, but also in the fundamentals of safety, performance expectations, attention to detail, day-to-day problem solving and effective use of resources in their work.

The initiatives established in the plan are designed to improve the effectiveness of the performance of station personnel. The initiatives systematically address personnel errors; enhance supervision, training, and procedure effectiveness; and establish expectations and require the monitoring of human performance. The human performance effectiveness initiatives are designed to improve performance through the following objectives: 1) address short term human performance needs and implement an observation program, 2) improve coaching and the use of the STAR ("Stop, Think, Act, Review") program, and 3) reduce the backlog of plant procedure changes and improve the change notice process.

To improve human performance issues, both internal and external reviews have been performed. Internally, quality action teams (QAT) were formed to review processes and programs that need improvements in the areas of supervisory methods, accountability, validation/verification of techniques, and communication of management standards. The QAT's recommendations are now being evaluated and implemented.

For external assistance in evaluation of human performance at RBS, FPI International was contracted to review condition reports and licensee event reports to assess and determine root cause of human performance issues. Their report has been issued and their recommendations are being reviewed and applied as necessary to provide corrective action. It was concluded that approximately 20% of the performance issues at RBS were based on self-checking and alertness with approximately 80% of the issues being a result of organizational and programmatic deficiencies. These conclusions indicate that the majority of the performance problems could be resolved by addressing the organizational and programmatic issues. In addition, this assessment found that extensive detail in written instruction can lead to dependency on instruction details and decrease the emphasis on learned skills.

At the time that the subject violations were identified, the NTPIP had been developed and actions were being implemented. Currently, most NTPIP actions have been completed and a long term performance improvement plan has been developed. The long term performance improvement plan (LTPIP) also addresses process improvements. One of the LTPIP key strategies is work process efficiency. The LTPIP establishes programs that will increase employee ownership and accountability for human performance and resolution of human performance issues. The plan addresses proven industry methods that are effective in reducing human errors by assuring that work is done correctly the first time and by identifying and correcting the root causes of human performance errors. The plan calls for the removal of human performance "traps" (such as poor procedure quality) and for improved procedure compliance. Several objectives are listed in the plan to reduce the number of events resulting from human performance issues, e.g., implement the human performance quality action team at RBS, develop an effective human performance database, trend human performance data, improve the STAR program implementation, etc.

The LTPIP requires that a strategy be developed to address work process efficiency -- a strategy that addresses the fundamental root cause of work process inefficiencies contributing to unsatisfactory performance. Implementation of this strategy includes focusing on four areas with a specific program designed to turn it into a strength. The four program areas of the work process strategy include work control, material management, modifications, and procedures. The objectives for each of the program areas and how they are to be obtained are detailed in the plan and are aimed at preventing recurrence of similar events as described in the following notices of violation (Attachments 2 and 3).

Attachment 2

REPLY TO NOTICE OF VIOLATION 50-458/9331-03

REFERENCE

Notice of Violation - Letter from A. B. Beach to John R. McGaha dated March 30, 1994.

VIOLATION

Failure to Follow Procedure

Technical Specification 6.8.1 requires, in part, that written procedures shall be implemented covering surveillance and test activities of safety-related equipment and covering the applicable procedures recommended in Appendix A of Regulatory Guide 1.33, Revision 2, February 1978.

Regulatory Guide 1.33, Appendix A, states, in part, that maintenance that can affect the performance of safety-related equipment should be performed in accordance with written procedures appropriate to the circumstances.

Contrary to the above, three examples were identified for which written procedures affecting safety-related maintenance activities were not implemented as required by the procedures:

1. On January 11, 1994, Step 2 of Maintenance Work Order R200150 required the inner door of the containment airlock to be locked while performing the maintenance activity on the door. Step 2 was signed off as completed by plant personnel; however, the door was not locked as required.
2. On January 3, 1994, Administration Procedure ADM-0015, "Station Surveillance Test Program," Revision 14, required that the steps in surveillance test procedures be performed in sequential order unless specifically stated otherwise in the procedure. While performing Procedure STP-207-4813, "RCIC Isolation - RCIC Steam Supply Pressure Low, 18 Month Response Time Channel A," Revision 5, the technicians performed Steps 7.1.23.43.a, -b, and -c out of sequence.
3. On January 14, 1994, Procedure STP-201-6312, "SLC Quarterly Valve Operability and Pump Flow Test Division II," Revision 1, require running suction and discharge pressures to be recorded on Data Sheet 1. During performance of the test, the steps requiring this action were signed off as completed; however, the data were not recorded as required.

Example 1

REASON FOR THE VIOLATION

An investigation of this event was conducted and included management interviews with personnel involved with this event. During those interviews, it became apparent that maintenance and work management center personnel had discussed in detail the maintenance work orders but 1) failed to recognize that the electrical interlocks would be disabled; 2) inadvertently signed the step No. 2 as completed when it should have been signed as "not applicable"; and 3) failed to recognize the cautions in the work package. Lack of attention to detail was determined to be the cause of these personnel actions. Signing the step as completed when it wasn't, was not a willful act by the maintenance technician to misrepresent, but was an existing condition as he understood it from the conversations that had gone on with other maintenance personnel, and directions that he had received from operations personnel.

Because of earlier events involving post maintenance tests, pre-job discussions between maintenance and operations personnel centered around post maintenance testing, more so than impact of the work scope. Detailed discussions of the activities to be undertaken and a review of the drawings did occur.

The maintenance personnel did not realize that removing the electrical interlock cover renders the locking mechanism inoperative during the evolution since the engagement for the interlock is disengaged when the cover is removed. There was no caution in the work instructions indicating that removal of the cover would render the locking mechanism inoperative.

Operations personnel did not realize that the scope of the work required the electrical interlock to be removed. As a result, operations personnel believed the door interlocks would not be disturbed and the decision was made to not lock the airlock door. Operations did dedicate an operator to this job to observe and perform the interlock tests following completion of maintenance activities.

Maintenance personnel were informed by Operations' work management center (WMC) personnel that locks would not be utilized during the work activity even though MWO-R200150 includes a caution on Page 3 of 6 which states: "Prior to disassembling door, insure that Operations has secured and locked the opposite door for TS considerations if in mode 1, 2, or 3." In addition, step 2 of the MWO instructions on page 4 of 6 states: "Insure that the inner door is locked per TS requirements if containment is required."

This step is applicable for work performed on the outer door. Step 17 on page 5 of 6 of the MWO instructions states: "Insure that the outer door is locked per TS requirements if containment is required." Similar steps were not included in the MWO-R162305; although, a caution was included on page 3 of 4 to : "Insure that the trombetta is de-energized during door maintenance."

Prior to starting the work, an announcement was made by the control room over the loud speaker system that the 171' airlock was out of service. A "NOTICE-WORK IN PROGRESS" sign was placed on the reactor side of the inner airlock door and a placard was placed on the card reader which indicated the card reader was off line. Step 1 of MWO-R200150 "Insure system tagged and in a safe condition to work (outer door)" was signed off as completed even though no tags were required. As work progressed, step 2 of MWO-R200150 "Insure that the inner door is locked per TS requirements if containment is required" was signed off as completed. Similarly, other steps related to the outer door were signed off as completed as the job proceeded. When contract personnel not associated with this work activity on the inner door attempted to access the hatch and entered the outer door, it became apparent that the airlock door was not locked per the requirements of the MWO.

Contributing causes include:

1. Preoccupation with the retest requirements diverted WMC personnel and maintenance personnel from what might have been a more thorough discussion of the need for locking the airlock door. This personnel oversight set the stage for operations personnel to decide to not lock the airlock door.
2. Maintenance work orders provide considerable latitude with regard to craftsmen determining what steps should be worked in an MWO. Instructions on page 1 of the MWO and maintenance practices indicate: "The steps this job plan, unless otherwise specified, need not be performed in the exact order listed. Perform only those steps that apply. N/A's should have a written justification beside the step." Maintenance personnel are allowed by MWO instructions to N/A steps which can not be performed or which, in their judgment, should not be performed. Had the steps been performed as written, the airlock door would have been locked.
3. Failure to take a conservative approach with regard to performance of the work and to compliance with TS requirements contributed to the failure to lock the airlock doors.

CORRECTIVE ACTIONS THAT HAVE BEEN TAKEN AND RESULTS ACHIEVED

Maintenance and work management center supervisors were disciplined concerning inadequate communications which led to this event. They were counseled on the need to maintain both a questioning attitude and a conservative approach to operations and compliance with Technical Specifications (TS). The maintenance technician who inappropriately signed off a step as completed, that was not performed as written, was disciplined regarding his lack of attention to detail.

Verbal instructions were issued to the maintenance foreman to ensure the airlock doors are locked whenever the monthly preventive maintenance tasks are performed. This was supplemented by written instructions. A review of preventive maintenance tasks associated with the airlock doors was performed to determine if there are other instances where the doors should be locked to assure compliance with TS.

CORRECTIVE STEPS THAT WILL BE TAKEN TO AVOID FURTHER VIOLATIONS

Maintenance has reviewed the appropriateness of the guidance associated with "not applicable" steps in MWOs and will revise the guidance as necessary. Letter No. APM-M-94-0072 has been issued to maintenance department personnel providing guidance for modifying MWO job steps when problems are encountered during the performance of maintenance activities.

In order to reduce the potential for personnel errors, RBS has completed a human performance quality action team (QAT) review, a Failure Prevention International (FPI) investigation, and has implemented strategies as addressed in the long term performance improvement plan (LTPIP).

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Compliance was achieved with respect to the specific violation upon restoration of the airlock to an operable status. Actions identified in the LTPIP will further improve compliance with procedures.

Example 2

REASON FOR THE VIOLATION

On January 3, 1994 during the performance of STP-207-4813, an instrumentation and control (I&C) technician performed Steps 7.1.23.4a, b and c out of sequence which violated ADM-0015. Personal interviews with the I&C technician revealed that the reason for this violation was personnel error. The technician reading the procedure mistakenly read the steps out of sequence when he momentarily lost concentration, and went on to initial the steps as if they were performed in sequence.

Two I&C technicians were performing a time response on a transmitter that required a "fill and vent" process. Normally, in venting a system, the steps require going from the low point to the high point. In this procedure a step required the technician to go to a high point early in the process to fill a hose with water prior to connecting it to the transmitter. As the venting was occurring, he was giving instructions and observing a sight glass showing an abnormal decreasing water level. This was a concern to him since fluid levels must be maintained; i.e., air in the system creates inaccurate instrument readings and would give a false indication of a slow response time. They were also getting to a point in the procedure where water would need to be added; all of which caused the technician to be under some tension. This sequence of events could have contributed to the technician losing focus as to the exact step that he should have been performing at the time.

At about this same time, a discussion occurred with the resident inspector (RI) concerning stopping the work to add the additional water. The technician thought the RI was pointing out to him that to add a step for adding water would cause the test steps to be out of sequence. The technician did not realize (until later) that a step had already been performed out of sequence.

CORRECTIVE STEPS THAT HAVE BEEN TAKEN AND THE RESULTS ACHIEVED

The procedure was reviewed to determine if the I&C technician may have been "set up" for failure. The procedure steps were determined to be clear and adequate.

The test results were evaluated to determine the effect of the steps being performed out of sequence. The evaluation concluded that the effect could have slowed the response time and resulted in false indication of a test failure. The actual test results were well within tolerance and were similar to the last test performance. The test results were concluded acceptable.

The technician involved with recording the data was counseled as to his responsibilities for strict procedural adherence.

The I&C group recently increased the number and duration of job observations and has since noted an improvement in job performance.

CORRECTIVE STEPS THAT WILL BE TAKEN TO AVOID FURTHER VIOLATIONS

Additional corrective actions that have been completed include the reorganization of the I&C group and the addition of technical specialists and supervisors. This has allowed first line supervisors to spend more time performing in-field supervision and coaching.

In order to reduce the potential for personnel errors, RBS has completed a human performance quality action team (QAT) review, a Failure Prevention International (FPI) investigation, and has implemented strategies as addressed in the long term performance improvement plan (LTPIP).

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Compliance was achieved with respect to the specific violation on January 3, 1994, when the error was resolved. Actions identified in the LTPIP will further improve compliance with procedures.

Example 3

REASON FOR THE VIOLATION

On January 11, 1994, during the performance of STP-201-6312, a running suction pressure of >5 psig was recorded for standby liquid control (SLC) pump "B". This reading was questioned and the STP was partially performed on January 14, 1994 to troubleshoot the higher-than-expected reading.

On January 14, 1994, the STP was signed-in indicating that it was being performed only "for information" on the running suction pressure. Acceptance criteria or any other permanent data were not being taken. The operator performing the test initialed the steps in the procedure, which required data to be recorded on the procedure data sheet. The operator, knowing that the data was for informational data only, (incorrectly) wrote the data on the back of the procedure page and not the data sheet. This was determined to be personnel error on the part of the operator.

CORRECTIVE STEPS THAT HAVE BEEN TAKEN AND THE RESULTS ACHIEVED

Following the test performed during troubleshooting, a successful test on SLC pump "B" was performed with all data properly documented. The operator involved with the violation has been counseled on strict adherence to procedures, as written, under all circumstances.

CORRECTIVE STEPS THAT WILL BE TAKEN TO AVOID FURTHER VIOLATIONS

Briefing of all operators on this incident will be completed by May 30, 1994. In order to reduce the potential for personnel errors, RBS has completed a human performance quality action team (QAT) review, a Failure Prevention International (FPI) investigation, and has implemented strategies as addressed in the long term performance improvement plan (LTPIP).

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Compliance was achieved with respect to the specific violation on February 10, 1994, on completion of the successful test on the SLC pump B and appropriate recording of the data. Actions identified in the LTPIP will further improve compliance with procedures.

Attachment 3

REPLY TO NOTICE OF VIOLATION 50-458/9331-04

REFERENCE

Notice of Violation - Letter from A. B. Beach to J. R. McGaha dated March 30, 1994.

VIOLATION

Failure to provide adequate procedure

Technical Specification 6.8.1.d requires, in part, that written procedures shall be established and maintained covering surveillance and test activities of safety-related equipment.

Contrary to the above, on January 11, 1994, Surveillance Test Procedure STP-201-6312, "SLC Quarterly Valve Operability and Pump Flow Test Division II," Revision 1, failed to require the pump to be run for a minimum of five minutes before taking data as required by IWP-3500 of the ASME Boiler and Pressure Vessel Code, Section XI. In contrast, Steps 7.2.29 and 8.2.30 required the pump to be run for three minutes maximum and to take data during that time.

THE REASON FOR THE VIOLATION

Failure to develop, request and obtain specific ASME Section XI relief from the NRC was determined to be the root cause. The standby liquid control (SLC) system design was inadequate for performance of the required Section XI testing. Although the system design limitations were understood by River Bend personnel, the Section XI Code Relief Request (PRR-11) was not developed to explicitly state that pump stoppage was required to accomplish system realignment. This realignment was necessary to transition from the recirculation mode (for the 5 minute stabilization period) to a lineup which pumped the contents of the test tank external to the system for the flow rate determination.

THE CORRECTIVE STEPS THAT HAVE BEEN TAKEN AND THE RESULTS ACHIEVED

The In Service Test (IST) group developed a new test method for SLC which proved to satisfy the ASME Code stabilization period; and it determines pump flow rate without stopping the pump. The new test method utilizes the "test drums" used in the previous STP, but adds a recirculation line from the test drums back to the test tank. This allows extended pump operation for the five minute stabilization period. The transition from recirculation mode to

flow measurement mode (i.e. volume pumped external to the system) is accomplished by securing the recirculation line (valve operation) without stopping the pump or changing the discharge flow path. The flowrate measurement is then accomplished in accordance with pump relief request PRR-11 (i.e. timing a five inch drop in the test tank level). This method proved to be successful and became the basis for the revised STP.

The SLC surveillance tests (STP-201-6311, Rev. 3 and STP-201-6312, Rev. 2) have been revised to perform the test using the new method developed in TP 94-0003. The revised STP's have been successfully performed.

All ASME Section XI pump surveillance tests (18 procedures covering 29 pumps) were reviewed to ensure that the requirements of article IWP-3500 (5 minute stabilization period) were properly implemented. This review identified seven procedures (affecting ten pumps) which will require revision.

THE CORRECTIVE STEPS THAT WILL BE TAKEN TO AVOID FURTHER VIOLATIONS

The IST group has been reorganized (on an interim basis) and augmented to provide additional support and peer review. The new organization and additional resources have proven to be effective in identifying and addressing program weaknesses. This effort is ongoing and continued success is expected.

Full time design engineering support is now being provided to the IST program on an interim basis. This has provided additional prospective and an independent review to the IST program. The engineering support has been successful in identifying and/or resolving several program weaknesses. This effort is ongoing and continued success is expected.

The corrective actions planned, or now in progress, are detailed in the River Bend Station "Long Term Performance Improvement Plan (LTPIP)." The LTPIP includes actions such as designating a program manager, defining the roles of engineering & operations, performing an Entergy Operations self-assessment (and correcting issues identified), and revising the program plan.

THE DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Revision of the SLC surveillance test procedures was made and acceptable performance of these procedures was completed by April 14, 1994.

The ASME pump surveillance procedures requiring revision, based upon the review discussed above, will be changed prior to their next scheduled performance; all procedure revisions will be completed no later than July 27, 1994.

Activities associated with the long term performance improvement plan for the IST program are ongoing as described in the plan.