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W3F1-94-0180
A4.05
PR

October 28, 1994

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Subject: Waterford 3 SES
Docket No. 50-382
License No. NPF-38
NRC Inspection Report 94-24
Reply to Notice of Violations

Gentlemen:

In accordance with 10CFR2.201, Entergy Operations, Inc. hereby submits in Attachment 1 the response to the violations identified in Appendix A of the subject Inspection Report. It should be noted that an event similar to that referenced by Violation 9424-01 has recently occurred at Waterford 3 on September 16, 1994 and was discussed at the exit meeting for inspection 94-19. Although this event was not covered under Inspection Report 94-24, it is addressed in this response. Also, it should be noted that Waterford 3 is concerned about and has placed the highest level of management attention on the recent reactivity management events. Waterford 3 will continue to evaluate them collectively and inform you of the conclusions when reached.

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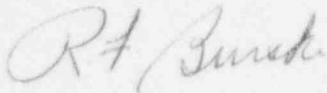
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If you have any questions concerning these responses, please contact
D.F. Litolff at (504) 739-6693.

Very truly yours,



R.F. Burski
Director
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RFB/DFL/ssf
Attachment

cc: L.J. Callan (NRC Region IV)
C.P. Patel (NRC-NRR)
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NRC Resident Inspectors Office (WADM526)

ATTACHMENT 1

ENTERGY OPERATIONS, INC. RESPONSES TO THE VIOLATIONS IDENTIFIED IN
APPENDIX A OF INSPECTION REPORT 94-24

VIOLATION NO. 9424-01

Technical specification 6.8.1.a requires, in part, that written procedures be established, implemented, and maintained covering the activities referenced in Appendix A of Regulatory Guide 1.33, Revision 2, February 1978. Regulatory Guide 1.33, Item 3.n, requires that the licensee establish procedures for operation of the chemical and volume control system (including the letdown/purification system).

Administrative Procedure OP-100-001, "Duties and Responsibilities of Operators on Duty," Revision 8, Step 5.12.6.1 specifies that the steps in operating procedures shall be addressed in the sequence they are written, not randomly. System Operating Procedure OP-002-005, "Chemical and Volume Control," Revision 10, Section 6.13, Blended Makeup to the VCT using the Manual Makeup Mode, Step 5, states, "Start the desired Boric Acid Pump and establish Boric Acid flow..."

Contrary to the above, on July 20, 1994, following the establishment of primary makeup water flow for a blended makeup to the volume control tank, a licensed reactor operator failed to start the desired boric acid pump and establish boric acid flow. This failure to follow procedures resulted in an inadvertent positive reactivity addition by adding 710 gallons of pure makeup water to the reactor coolant system.

This is a Severity Level IV violation (Supplement 1)(382/9424-01).

RESPONSE

(1) Reason for the Violation

Entergy Operations, Inc. admits to this violation. It is believed that the root cause of the violation associated with the July 20, 1994 event (Example A) was personnel error due to a lack of self-checking to ensure intended actions were correct. Contributing causes for this event were: 1) The Primary Nuclear Plant Operator (PNPO) failed to communicate information to the Control Room Supervisor (CRS); and 2) The PNPO was not expecting the resulting system response due to the actions.

Given the similarity between the July 20th event and a September 16, 1994 boric acid addition event (Example B), Waterford 3 will address the September 16th event along with this violation response. It is believed that the above root cause is also applicable to the September 16th event. A contributing cause to the September 16th event was the non-continuous use of Chemical and Volume Control procedure, OP-002-005.

Example A

On July 20, 1994 at approximately 2000 hours, the PNPO decided to perform a blended makeup to the Volume Control Tank (VCT), while the VCT level was at 47%. This evolution is covered in operating procedure OP-002-005, Section 6.13. The PNPO thought he had completed steps for a blended makeup with the exception of opening valve CVC-510 and starting a boric acid makeup pump, when an annunciator on CP-8 for Safety Injection Tank Low Pressure activated. The PNPO immediately went to CP-8 to acknowledge the annunciator, unaware that water was being injected into the VCT. The PNPO then commenced to pressurize the Safety Injection Tank with nitrogen in order to restore system pressure to within its required band. Meanwhile, the VCT level continued to rise due to the makeup, which only contained pure water. At approximately 2010 hours, the Control Room Supervisor (CRS) trainee, who was a licensed reactor operator, noticed that the primary makeup water (PMU) totalizer was counting upward and 100 gpm of PMU flow was entering the VCT. The CRS trainee immediately informed the PNPO of the VCT level rise, who in turn secured the makeup to the VCT, thereby securing the addition of pure water to the RCS. The PNPO determined that approximately 710 gallons of water had been added to the VCT. RCS average temperature had risen from 576°F to 577°F and reactor power had risen from 100.0% to a peak of 100.381%. The PNPO then added 24 gallons of boric acid to the VCT, but RCS temperature continued to rise. The PNPO then added 150 gallons of boric acid to the suction of the charging pumps. Shortly after this addition of boric acid, RCS cold leg temperature dropped five degrees, to 541.5°F, and reactor power dropped to 97%. It was at this point that the PNPO informed the regular On-Shift CRS that he had problems with trying to stabilize the plant. TS 3.2.6 action was entered at 2030 hours because of the drop in RCS cold leg temperature. The PNPO commenced reducing turbine load to stop the drop in temperature. Turbine load was reduced by seven megawatts. At 2108 hours, RCS cold leg temperature was greater than 544°F and TS 3.2.6 was exited. At approximately 2138 hours, reactor power was stable at 100%.

Example B

On September 16, 1994, at approximately 1640 hours, the PNPO (who was not the same PNPO associated with the July 20th event) decided to perform a makeup to the VCT using the Borate Makeup Mode. The VCT level was at 43%. The PNPO had reviewed the procedure for blended makeups (OP-002-005) earlier in the day and was performing this evolution in accordance with Section 6.11 of OP-002-005. At the time, it was not a requirement to have this procedure in hand while conducting a makeup (i.e. in continuous use). The PNPO had completed Step #2 of Section 6.11, which places the control switch for BAM-143 (Direct Boration Valve) to the close position, when several annunciator alarms occurred. He then returned BAM-143 to the Auto position prior to acknowledging the annunciator alarms. When he recommenced the makeup, the PNPO failed to switch BAM-143 to the closed position and open CVC-510 (VCT Makeup Stop Valve). Upon placing the Makeup Mode Selector Switch to borate position, the Boric Acid Makeup Pump started and BAM-143 opened allowing 40 gallons of boric acid to enter the RCS. This error was detected by the PNPO within two minutes and he immediately notified the CRS. He then promptly injected 220 gallons of primary makeup water to the VCT. The PNPO remained at Control Panel CP-4 during the entire time of the event. Turbine power was lowered to maintain the RCS temperature/turbine load match. Reactor Power was stabilized at 98.5% and RCS cold leg temperature at 545°F.

(2) Corrective Steps That Have Been Taken and the Results Achieved

Example A

Shift Supervisor:	Counseled PNPO in accordance with the Improving Human Performance (IHP) Program.
	Was instructed (as was the CRS) by the Operations & Maintenance (O&M) Manager to perform increased monitoring of the PNPO.
Operations Superintendent:	Discussed at length the event with the PNPO and the CRS.
	Discussed the event during a departmental meeting, stressing the

important and sensitive nature of reactivity management.

Issued a letter to all licensed operators which addresses the event and reactivity management.

Met with all Shift Supervisors (SS) and discussed the importance of this event, reactivity management, and proper supervision.

O&M Manager:

Discussed at length the event with the PNPO, CRS and SS.

Chartered an Event Review Team to investigate the event and its root cause.

Issued a confidential letter to the Plant Manager outlining certain considerations, actions, and supervisory discussions concerning the PNPO involved.

General Manager, Plant Operations:

Had meeting with Operations Superintendent, O&M Manager, SS, CRS, Training Personnel and Shift Technical Advisors to discuss this event emphasizing the importance of conservative decision making with respect to reactor manipulations and communications.

Vice-President, Operations:

Discussed at length the event with the Operations Superintendent and the O&M Manager.

Discussed the event with the PNPO, CRS and SS involved.

Discussed the event and reactivity management in general with all SS's.

Example B

The PNPO was debriefed in accordance with the IHP Program and the responsible PNPO was temporarily assigned to an Off-Shift status.

The Operations Superintendent issued Daily Instructions requiring procedure OP-002-005 to be in continuous use until it can be procedurally designated as a "continuous-use-procedure."

Procedure OP-002-005, Chemical and Volume Control, has been changed to provide a single section of the procedure for routine blends to the VCT.

(3) Corrective Steps Which Will Be Taken to Avoid Further Violations

Examples A and B

The Operations and Maintenance Manager will conduct seminars with all licensed operators to discuss conservative actions, proper communications, teamwork, and getting supervisors involved with problems.

The Training Department will conduct training during the next Operator Requalification Cycle with all licensed operators and Shift Technical Advisors on reactivity management with emphasis on system response to boric acid and makeup additions and on the conservative decision making process.

Change OP-100-001, Duties and Responsibilities of Operators on Duty, Section 5.12 to identify VCT makeup procedures as Continuous Use procedures.

Review reactivity-related sections of OP-002-005, Chemical and Volume Control, for human factoring considerations. Any necessary changes will be incorporated into Revision 12 of this procedure.

After OP-002-005 is changed, conduct Operator Requal training on OP-002-005, to include blended makeup evolutions on the simulator.

(4) Date When Full Compliance Will Be Achieved

The seminars with all licensed operators as mentioned above will be completed by 11/20/94.

The training on reactivity management mentioned above is scheduled to be completed by 04/15/95.

Procedure OP-100-001 will be updated to identify VCT makeup procedures as Continuous Use procedures by 11/30/94.

Procedure OP-002-005 will be updated by 12/15/94 to include any necessary human factoring enhancements.

Operator Requal training on OP-002-005 will be completed by 04/15/95.

VIOLATION NO. 9424-02

Technical Specification 6.8.1.a requires, in part, that written procedures be established, implemented, and maintained covering the activities referenced in Appendix A of Regulatory Guide 1.33, Revision 2, February 1978. Regulatory Guide 1.33, Item 1.b, requires the licensee to specify the authorities and responsibilities for safe operation and shutdown of the facility.

1. Administrative Procedure OP-100-001, "Duties and Responsibilities of Operators on Duty," Revision 8, Step 4.5.7, requires that the nuclear plant operator alert the control room supervisor to significant changes in plant status or observed indications of off normal unit or equipment performance. Further, Step 4.5.12, requires, in part, that the nuclear plant operator monitor parameters associated with plant operations and notify the shift supervisor/control room supervisor of unusual indications and abnormal trends.

Contrary to the above, on July 20, 1994, a nuclear plant operator failed to inform the control room supervisor of a positive reactivity addition and the subsequent addition of 150 gallons of boric acid that caused the reactor coolant system cold leg temperature to drop to 541.5 OF, which exceeded the Technical Specification 3.2.6 limits.

2. Administrative Procedure OP-100-001, "Duties and Responsibilities of Operators on Duty," Revision 8, Step 4.4.3.2, specifies that the control room supervisor has the authority to cease any activity within the unit that, if continued, would have an immediate and adverse impact upon operations.

Contrary to the above, on August 19, 1994, the on-duty control room supervisor failed to stop a rinse of Ion Exchanger C when encountering problems with boric acid makeup flow and maintaining volume control tank level with the chemical and volume control system. Consequently, the reactor coolant system boron concentration was diluted, which added positive reactivity and caused reactor power to exceed the 100 percent licensed power level.

These two examples constitute one Severity Level IV violation (Supplement 1) (382/9424-02)

(1) Reason for the Violation

Entergy Operations, Inc., admits to this violation. It is believed that the root cause for Example 1 of the violation is inattention to detail by failure to follow procedures. It is believed that root cause of Example 2 was inappropriate action due to unconservative operator decision making in the Control Room.

Example 1

The specific situation involving this example is addressed in the above discussion section of the response to Violation 9424-01.

Example 2

During the rinsing of an ion exchanger on August 19, 1994, boric acid flow to the Volume Control Tank decreased significantly, apparently due to a mechanical deficiency of the boric acid makeup header check valve (BAM-146). As boric acid flow decreased and plant operators were unable to get more acid flow through BAM-146, they decided to directly borate to the RCS to maintain reactor power and temperature, and continued to do so throughout the remainder of the evolution. This decision was made in order to balance acid with PMU flow. This exercise was exacerbated by the fact that two charging pumps were draining the VCT at a high rate and resulted in several minor power excursions. It appears that the operating crew placed too much emphasis on continuing the evolution given the problems that were encountered. A preferable decision would have been to secure the rinse, once acid flow problems were discovered, to avoid RCS dilution. The failure to secure rinsing to the ion exchanger once problems with boric acid flow were realized is considered to have contributed to the Reactor Coolant System dilution. It should be noted that at no time during the event did the plant exceed the allowable operating reactor core power limit.

(2) Corrective Steps That Have Been Taken and the Results Achieved

Example 1

The PNPO was counseled in accordance with the IHP Program.

Example 2

Condition Report (CR) 94-799 was generated to begin the corrective action process.

An Event Review Team was established to perform an investigation of the event. A Root Cause Analysis Report has been issued by this team.

A warning that BAM-146 is not operating properly and can restrict flow to the VCT was incorporated into the daily instructions for Operations personnel on 08/19/94. The instructions state that blends to the VCT must be slow and deliberate.

A description of the current problems with BAM-146 was also documented on an Operations Workaround Input Form to assure that Control Room personnel are aware of the existing condition.

Operations Procedure OP-002-005 was reviewed in light of this event. This procedure has been changed to require only one charging pump to be used when rinsing ion exchangers in a series lineup.

Specific Instructions concerning blended makeups, borations and dilutions to the RCS were given to the Nuclear Plant Operators (NPOs) and CRSs. Instructions were given on what actions to take if NPOs and Nuclear Auxiliary Operators (NAOs) experience difficulty in performing an intended task. Instructions were given to NPO's to verify their techniques for reactivity control are in compliance with approved plant procedures. These instructions were part of the Daily Instructions for 08/25/94. Operations personnel have reviewed these instructions.

The Control Room Shift involved with this event was observed as an operating shift crew in the Simulator on 08/22/94. Two approved practice Simulator scenarios were observed by the Assistant Operations Superintendent and two Operations Training Instructors. The shift's performance was satisfactory.

The Operations Superintendent monitored the operational performance on the Simulator of the Control Room Shift involved with this event on 08/30/94 to ensure an acceptable level of performance.

The Vice President, Operations has conducted talks on reactivity management with all Shift Supervisors.

(3) Corrective Steps Which Will Be Taken To Avoid Further Violations

Example 1

The Operations and Maintenance Manager will conduct seminars with all licensed operators to discuss conservative actions, proper communications, teamwork, and getting supervisors involved with problems.

Example 2

The Operations Superintendent will discuss reactivity management with all Operations Personnel.

The Training Department will conduct training during the next Operator Requalification Cycle with all Licensed Operators and Shift Technical Advisors on "Reactivity Management" with emphasis on system response to boric acid and makeup additions.

(4) Date When Full Compliance Will Be Achieved

Example 1

The seminars with all licensed operators will be completed by 11/20/94.

Example 2

Discussions with all Operations personnel on reactivity management will be completed by 11/20/94.

Waterford 3 will be in full compliance when the Operator training on reactivity management described above is completed. This training is scheduled to be completed by 04/15/95.

VIOLATION NO. 9424-03

Technical Specification 6.8.1.a requires, in part, that written procedures shall be established, implemented, and maintained covering the activities referenced in Appendix A of Regulatory Guide 1.33, Revision 2, February 1978. Regulatory Guide 1.33, Item 9.a, requires that maintenance that affects the performance of safety-related equipment should be properly preplanned and performed in accordance with written procedures, documented instructions, or drawings appropriate to the circumstances.

Administrative Procedure UNT-005-015, "Work Authorization Preparation and Implementation," Revision 1, Step 5.6.1 specifies, in part, that maintenance, design change and testing that can affect the performance of plant equipment and/or the quality of such equipment shall be properly pre-planned and performed in accordance with written procedures or instructions. Step 5.10.5, "Lead Discipline Planner," specifies that for each individual work authorization, appropriate post-maintenance test instructions shall be given to verify that the maintenance performed corrected the original condition; further, post-maintenance test instructions should be clearly written test instructions and with a test scope sufficient to verify adequacy of the work accomplished.

Contrary to the above, the inspectors determined that planning personnel failed to properly pre-plan a post-maintenance test for Work Authorization 01056973 performed on April 14, 1994, because the personnel failed to identify the specific steps needed to assure that the maintenance corrected the original condition.

This is a Severity Level IV violation (Supplement I) (382/9424-03).

RESPONSE

(1) Reason for the Violation

Entergy Operations Inc. admits this violation and believes that the root cause was inappropriate action based on the failure to transfer information from the original Condition Identification (#256808) to the follow-up Condition Identification (#265780), causing the lead discipline planner to provide inadequate post-maintenance testing instructions for Work Authorization (WA)#01056973.

In June, 1988, Condition Identification (CI) #256808 was written on the Boric Acid Makeup Header Check Valve, BAM-146, because the valve

appeared to be sticking, limiting boric acid flow through the valve to about 7 gpm. Inspection of the valve was performed under Work Authorization (WA) #01021217 on 10/06/89. However, when removal of the cap was attempted, the threads galled after one turn, preventing disassembly of the valve. It was recommended to leave the valve as is and to replace it at a later date.

On 10/11/89, CI#265780/WA#01056973 was written to replace BAM-146. No replacement was immediately available, so a Substitute Part Equivalency Evaluation Report (SPEER #9401196) was initiated to replace BAM-146 with another type of valve. BAM-146 was replaced on 03/10/94, during Refuel 6 (RF6), with an almost identical valve. The replacement valve did not contain a spring whereas the original valve was spring-loaded. It had previously been recommended by engineering that springs be removed from this type of valve.

The post-maintenance testing instructions for WA#01056973 required Plant Maintenance Mechanical with Operations assistance to ensure that the newly installed valve is not sticking and seats properly. However, no mention of the fact that BAM-146 was limiting flow to 7 gpm was documented on this work package, thus no requirement for flow measurement was included in the retest instructions.

When the valve was replaced during RF6, the Retest Coordinator took credit for the retesting requirement to ensure BAM-146 was not sticking by verifying with the on-shift PNPO that a successful blended makeup to the Refueling Water Storage Pool had been performed after the valve had been installed. It has since been verified by flow recorder BAM-IFR-0210Y that an average flow in excess of 25 gpm was achieved for the duration of this makeup. This recorder provides sufficient indication that the newly-installed BAM-146 was not restricting flow. However, the fact that a blended makeup was used for the post-maintenance test was not documented on the WA by Operations personnel.

It is believed that if the original condition of BAM-146 (limiting flow to 7gpm) would have been taken into consideration and documented on the CI/WA which replaced BAM-146, Operations personnel would have been keyed to verify and document flow rate measurement as part of the post-maintenance testing to ensure the original condition had been corrected.

(2) Corrective Steps That Have Been Taken and the Results Achieved

Condition Report 94-851 was initiated to begin the corrective action process.

It should be mentioned that the Retest Coordinator for RF6 identified the need for more specific post-maintenance instructions for certain WA's. A recommendation regarding this issue was included in the Post Outage Critique to the Maintenance Superintendent.

(3) Corrective Steps Which Will Be Taken To Avoid Further Violations

The Discipline Maintenance Supervisors will discuss this violation at maintenance shop meetings and emphasize the importance of transferring details from an original CI to a follow-up CI to ensure the original condition is addressed.

A note will be added to procedure UNT-005-002, "Condition Identification," instructing personnel to transfer original conditions when writing a follow-up CI on a condition that was not fully corrected.

A process to identify CI's for which the post-maintenance testing is not provided for by an Operations Procedure or for which post-maintenance test requirements are not obvious (i. e. when cause of condition is unclear) will be developed. These identified CI's will be evaluated by engineering personnel to ensure the actual cause of the condition is identified and to determine the necessary post-maintenance testing requirements to assure the condition has been corrected. This process will be added to the responsibilities of the Condition Identification Review Committee (CIRC), which is made up of Maintenance, Operations, and Engineering supervisory personnel, as listed in procedure UNT-005-002, "Condition Identification," and is intended to identify problems up-front, helping to avoid uncertainty of testing requirements at the time the testing is performed.

The changes to UNT-005-002 will be placed in the Operations Department priority required reading for all Operations personnel to review.

Although not a corrective action for this particular violation, it should be mentioned that valve BAM-146 will be replaced because of apparent flow restriction being experienced during blended makeups.

* (4) Date When Full Compliance Will Be Achieved

Discussions of this violation at maintenance shop meetings will be completed by 12/16/94.

Procedure UNT-005-002 will be updated by 01/01/95 to include the maintenance instruction on transferring details on CI's and the responsibility of the CIRC to identify CI's needing engineering attention.

The Operations required reading on the changes to UNT-005-002 will be completed by 03/02/95.