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SUBJECT: Responds to NRC 910510 ltr re violations noted in Insp Repts  
 50-259/91-10, 50-260/91-10 & 50-296/9-10. Corrective actions:  
 mod closure process for vacuum breakers revised & new  
 nuclear power std on equipment clearances issued.

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Mark O. Medford  
Vice President, Nuclear Assurance, Licensing and Fuels

JUN 21 1991

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

Gentlemen:

In the Matter of	)	Docket Nos. 50-259
Tennessee Valley Authority	)	50-260
		50-296

BROWNS FERRY NUCLEAR PLANT (BFN) - NRC INSPECTION REPORT 50-259, 260,  
296/91-10 - REPLY TO NOTICE OF VIOLATION (NOV)

This letter provides TVA's reply to the NOV transmitted by letter from B. A. Wilson to Dan A. Nauman, dated May 10, 1991. NRC cited TVA with two violations. The first violation contains two examples for failure to implement test control measures for returning components to service. The second violation addresses two examples of failure to comply with Technical Specification requirements for not obtaining required compensatory samples.

TVA agrees that the violations noted in the NOV violated regulatory requirements. Enclosure 1 to this letter is TVA's "Reply to the Notice of Violation" in accordance with 10 CFR 2.201. A listing of commitments made in this letter is provided in Enclosure 2.

As agreed with your Staff, the submittal date for this reply was extended to June 24, 1991.

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PDR ADQCK 05000259  
Q PDR

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U.S. Nuclear Regulatory Commission

JUN 21 1991

If you have any questions regarding this response, please telephone Patrick P. Carrier at (205) 729-3570.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

  
Mark O. Medford

Enclosures

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Enclosure 1

Tennessee Valley Authority (TVA)

Browns Ferry Nuclear Plant (BFN)

Reply to Notice of Violation (NOV)

Inspection Report Number

50-259, 260, 296/91-10

NRC cites TVA with two violations. The first violation involved two examples for failure to implement testing program requirements. TVA agrees that a violation occurred in both examples. In example 1, adequate post modification testing (PMT) requirements were not performed due to a lack of administrative control. This resulted in a field change request (FCR) not being reviewed prior to testing. In example 2, the residual heat removal service water (RHRSW) pump was not caution tagged due to personnel error.

The second violation was for failure to maintain Technical Specification (TS) requirements for compensatory sampling. TVA agrees that a violation of regulatory requirements on compensatory sampling occurred. The violation was due to poor work practices which resulted in two compensatory activities being signed off as complete when they were not performed.

VIOLATION A

During the Nuclear Regulatory Commission (NRC) inspection conducted on March 16 - April 19, 1991, a violation of NRC requirements was identified. The violation involved examples of failure to implement testing program requirements. In accordance with the 'General Statement of Policy and Procedure for NRC Enforcement Actions,' 10 CFR Part 2, Appendix C (1990), the violation is listed below:

"10 CFR50 Appendix B, Criterion XI, Test Control, requires that a test program shall be established to assure that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance limits contained in applicable design documents. Test results shall be documented and evaluated to assure that test requirements have been satisfied.

Contrary to the above, activities involving test control were not correctly implemented in accordance with requirements for the following examples:

1. Adequate post modification testing (PMT) requirements were not stipulated following completion of design change P3051. The reactor building to torus vacuum breakers opened unexpectedly when torus pressure was greater than reactor building pressure during the integrated leak rate test on March 18, 1991. The vacuum breakers are designed to vent air from the reactor building to the torus when reactor building pressure exceeds torus pressure by 0.5 psig.
2. During the return to service activities for the A3 residual heat removal service water pump, PMT was not completed. The pump was not caution tagged as required by procedure SDSP 14.9, for components awaiting PMT. The pump failed to start on October 4, 1990, when aligned to start for testing the 3D diesel generator. The cause was later determined to be a wiring error during implementation of DCN W4515A. The same pump failed to autostart on September 27, 1990, during diesel generator testing and the cause had not been determined as of October 4, 1990.

This is a Severity Level IV Violation (Supplement I) applicable to all three units."

#### VIOLATION B

"TS Section 3.2.D requires that radioactive liquid effluent monitoring instrumentation listed in Table 3.2.D to be operable when effluent releases are in progress via the instrument pathway. Table 3.2.D includes Raw Cooling Water (RCW) monitor 2-RM-90-132. TS 3.2.D also requires that grab samples be collected and analyzed at least once per 8 hours when the RCW monitor is inoperable and effluent releases are continued.

TS Section 3.2.K requires the radioactive gaseous effluent monitoring instruments listed in Table 3.2.K to be operable. Table 3.2.K includes Reactor/Turbine Building Ventilation monitors 1-RM-90-250, 2-RM-90-250, and 3-RM-90-250 and Radwaste Building Ventilation monitor 0-RM-90-252. TS 3.2.K also requires that actions be taken whenever the instruments are declared inoperable and effluent releases are being conducted through an affected pathway. The required actions include a flow rate estimate at least once every four hours.

Contrary to the above, on March 1, 1991, the licensee determined that surveillance instruction data was not valid for the following two examples:

1. Flow rate estimates taken on December 5, 1990, at 4:00 a.m., for inoperable monitors 1-RM-90-250, 2-RM-90-250, 3-RM-90-250, and 0-RM-90-252.



2. A compensatory grab sample taken on December 11, 1990, at 10:03 a.m., for inoperable RCW monitor 2-RM-90-132.

This is a Severity Level IV Violation (Supplement I) applicable to all three Units."

TVA'S REPLY TO VIOLATION A

EXAMPLE 1

1. Admission of Violation

TVA agrees that a violation occurred.

2. Reason for Violation

This violation was caused by a lack of administrative control. An adequate PMT was not performed because a FCR was not reviewed for impact on the PMT. The FCR modified pressure differential transmitters (PDTs) for the vacuum breakers. At the time of this modification there were no procedural requirements for the FCR to be reviewed for PMT requirements.

Engineering Change Notice P3051 installed PDTs for the vacuum breaker valves (2-FCV-64-20 and 21). The modification of the sensing lines to the PDTs was implemented by WP 2036-84. The high and low side of the PDTs were connected to the process sensing lines in January 1987, and a walkdown of the PDTs was completed in July 1987. This walkdown was required to ensure that the instrument lines were not reversed. PMT of the PDTs was started in August 1987 prior to the completion of WP 2036-84.

However, before the PMT of the PDTs was completed, WP 2036-84 was revised by a FCR to incorporate vendor recommendations on the PDTs. This involved rotating and reinstalling the PDTs with the high side vent located on the top of the transmitters. After the transmitters were rotated, the sensing lines were incorrectly attached to the PDTs. The revised WP was not reviewed again to ensure adequate PMT was performed on the PDTs.

Other factors contributed to the incorrect installation of the sensing lines and the WP not being reviewed. These factors included the extended duration of the modification and testing, and several changes in test directors and modifications personnel resulting in the loss of continuity.





3. Corrective Steps Taken and Results Achieved

In this event, the FCR incorporating the vendor recommendations was not reviewed for impact on PMT. To address this weakness, the procedure governing modification closure, Site Director's Standard Practice (SDSP) 12.4, now requires relevant FCRs, final design change notices (F-DCNs) and other safety design or testing changes (e.g., 10 CFR 50.59 review revisions) be formally reviewed against the final as-built condition and final design requirements. SDSP 12.4 also requires copies of F-DCNs to be distributed to plant organizations to inform them of minor changes to a modification during implementation. Additionally, this SDSP includes piping reroute modifications as an item to be considered by the system engineer during the field survey conducted just prior to plant acceptance of a modification.

In addition, plant procedures have been revised as part of the procedure upgrade program since the modification of the PDTs. The PMT program now has its own governing document, SDSP-17.2. This SDSP requires that each PMT instruction have a prerequisite addressing review of the modification installation status. This delineates review of any field change completion status, and the impact of incomplete or partially complete modification status on initial testing. Also, configuration control is maintained in the test record drawings and these test record drawings require concurrence signatures by the implementing organization, a Nuclear Engineering representative, and the test director. This combined drawing review prior to the beginning of the test will detect any unincorporated field changes affecting the test performance.

Finally, since the modification of the PDTs of the vacuum breakers, the modification closure process has been refined. This closure process now includes a revised modification work completion statement (SDSP-133) form that lists the affected drawings and field changes. System engineers are required to review the SDSP-133 forms and are responsible for system testing. This minimizes breaks in continuity.

4. Corrective Steps Which Will Be Taken

No further corrective steps are required.

5. Date When Full Compliance Will Be Achieved

TVA has achieved full compliance.



EXAMPLE 2

1. Admission of Violation

TVA agrees that a violation occurred.

2. Reason for Violation

This violation was caused by personnel error.

In this event, a caution tag was not placed on the control switch for the A3 RHRSW pump as required by SDSP 14.9, Equipment Clearance Procedure, for components awaiting PMT. Additionally, an inadequate review of open corrective action documents (i.e. test deficiency and work order) from the diesel generator testing on September 27, 1990, permitted the incorrect assignment of the A3 RHRSW pump to autostart on October 4, 1990. This inadequate review is due to failure to adhere to Plant Managers Instruction (PMI) 17.1, Conduct of Testing. Both conditions were the result of personnel errors and indicate a lack of awareness of procedural requirements.

A contributing factor to this event was the inconsistent personnel interpretation of the word "immediately" as used in SDSP-14.9. SDSP-14.9 states, "If maintenance is performed ... but the specified Post Maintenance Testing cannot be completed immediately following the maintenance, a caution order will be issued ... " Interviews with plant personnel indicated that the term "immediately" was interpreted to mean a time frame that could extend up to several hours.

3. Corrective Steps Taken and Results Achieved

The October 4, 1990 event has been investigated, and the incident investigation (II) report of this event was reviewed with operations personnel to emphasize the importance of attention to detail and adherence to plant procedures. Additionally, TVA has performed a Human Performance Enhancement System (HPES) evaluation on the personnel involved, and the results of this HPES have been incorporated as part of the II to prevent recurrence.

Subsequent to this event, an additional II (II-B-91-074) was performed to review caution orders issued for equipment awaiting PMT. This investigation revealed that prior to October 4, 1990, very few caution orders were written that denoted a PMT which had not been completed. However, in the last quarter of 1990 and in the first quarter of 1991, the number of PMT-related caution orders has substantially increased. TVA considers the increased number of PMT-related caution orders can be credited to the current level of awareness resulting from review of the October 4, 1990 event.

To prevent recurrences on PMT-related caution orders, the operator requalification training lesson plan for the equipment clearance procedure has been revised to include the requirement for caution orders to be placed for equipment awaiting PMT. Additionally, a computerized clearance tracking system has been implemented at BFN. This system will automatically generate the caution tags which are required after maintenance.

4. Corrective Steps Which Will Be Taken

Licensed and non-licensed operators will review the II (II-B-91-074) during their required reading, and this investigation will be discussed with licensed operators by the Operations Superintendent. During this discussion the Operations Superintendent will counsel each group on adherence to procedures, and reinforce Operations' policies concerning equipment awaiting PMT.

On April 4, 1991, a new TVA Nuclear Power Standard on equipment clearances was issued. The standard has been reviewed by Operations and defines the process by which caution tags are placed on equipment following maintenance. The standard will be fully implemented at BFN as a Site Standard Practice (SSP). This SSP will use the Technical Specification (TS) definition of immediate, which means "the required action will be initiated as soon as practicable considering the safe operation of the unit and the importance of the required action." Also, steps will be included in the practice that require equipment subject to automatic starts to have the caution order place the electrical power sources in the non-operating position.

5. Date When Full Compliance Will Be Achieved

Full compliance will be achieved by September 15, 1991.

TVA'S REPLY TO VIOLATION B

EXAMPLES 1 AND 2

1. Admission of Violation

TVA agrees that a violation occurred.

2. Reason for the Violation

This violation was caused by poor work practices. The poor work practices resulted in two compensatory activities being signed off as complete when they were, in fact, not performed.

As a result of a previous occurrence involving missed compensatory samples TVA reviewed Reactor Building entry data, refuel floor entry logs, Surveillance Instruction (SI) data sheets, and conducted personnel interviews. Based on the results of this review, TVA discovered that Radiochemical Laboratory Analysts (RLAs) did not always sign off SI steps as they were performed, RLAs sometimes signed off steps that other RLAs performed, RLAs on occasion contacted other plant personnel for compensatory flow readings, and the Chemistry Shift Supervisors (CSSs) did not always ensure SIs were completed when performed.

3. Corrective Steps Taken and Results Achieved

Chemistry management administered personnel corrective action to the employees involved in accordance with TVA policy.

In addition, Chemistry personnel were issued a memorandum providing retraining on the significance of signatures/initials in procedures. This memorandum clearly outlined management's expectations and the consequences of non-compliance. A similar site-wide memorandum was issued discussing the same subject. These actions should heighten the awareness level of chemistry personnel to the significance of signatures.

For recurrence control, chemistry management is requiring the CSS to take a more active role in monitoring shift activities. Sign-offs for the CSS have been added to all the chemistry compensatory SIs so that the CSS verifies completion of each individual compensatory measure. Additionally, Chemistry management conducted a two-week assessment of laboratory practices; their observations concluded that programmatic deficiencies did not exist.

Finally, this event was referred to TVA's Office of Inspector General (OIG). The OIG confirmed that the incident was adequately addressed and considers this matter closed.

4. Corrective Steps Which Will be Taken

No further corrective steps are required.

5. Date When Full Compliance Will be Achieved

TVA has achieved full compliance.



Enclosure 2

Listing of Commitments for Violation A

1. Operators will review Incident Investigation II-B-91-074, and this investigation will be discussed with licensed operators by the Operations Superintendent. The Operations Superintendent will counsel each group on adherence to procedures, and reinforce Operation's policies concerning equipment awaiting PMT. This review will be completed by September 15, 1991.
2. TVA's Nuclear Power Standard on equipment clearances will be fully implemented at Browns Ferry as a Site Standard Practice (SSP). This SSP will use the technical specification definition of immediate and will include steps that require equipment subject to automatic starts to have the caution order place the electrical power sources in the non-operating position. This action will be completed by September 15, 1991.



