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AUG 2 8 1998

U.S. Nuclear Regulatory Commission
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10 CFR 2.201

Gentlemen:

In the Matter of)
Tennessee Valley Authority)

Docket No. 50-390

WATTS BAR NUCLEAR PLANT (WBN) - UNIT 1 - NRC INSPECTION REPORT NO. 50-390/98-05 - REPLY TO NOTICES OF VIOLATION (NOV) 50-390/98-05-01 AND 50-390/98-05-03

This letter provides TVA's reply to NOVs 98-05-01 (Violation A) and 98-05-03 (Violation C) which are documented in the subject inspection report dated July 6, 1998. Enclosure 1 provides the reply to the subject NOVs.

NOV 98-05-01 (Violation A) cited a failure to identify and include certain plant functions of systems, structures, and components (SSC's) within the scope of the Maintenance Rule. TVA does not consider that the failure to include the SSC's cited in Example 1 and one of the SSC's cited in Example 2 represents a violation of the Maintenance Rule. In addition, TVA requests that NRC re-categorize the remaining portion of Example 2 as a non-cited violation in accordance with the self identification criteria provided in Section VII.B.1 of NRC's Enforcement Policy.

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NOV 98-05-03 (Violation C) involved the methods used to demonstrate SSC performance. TVA uses the INPO methodology to calculate unavailability for functional systems during surveillance testing. TVA has concluded that this does not represent a violation of the Maintenance Rule and therefore denies this violation based on its strong belief that the methodology used for monitoring the cited SSC's against site performance criteria is clearly an acceptable, albeit different, method of accomplishing the performance-based objective of the Rule to monitor (a)(2) systems. Further, the bases for this violation seems contrary to NRC Commission guidance on allowing maximum flexibility to licensees to meet the objective of improved power plant maintenance.

Enclosure 2 provides the list of commitments made by TVA in this letter. The schedule for submitting this response was coordinated with Region II personnel as described in TVA's letter dated July 27, 1998. If you should have any questions, please contact P. L. Pace at (423) 365-1824.

Sincerely,

R. T. Purcell

Enclosures

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ENCLOSURE 1

TENNESSEE VALLEY AUTHORITY
WATTS BAR NUCLEAR PLANT (WBN)
UNIT 1

INSPECTION REPORT NUMBER 50-390/98-05
REPLY TO NOTICE OF VIOLATION (NOV)

I. RESTATEMENT OF VIOLATION 50-390/98-05-01 (Violation A)

"10 CFR 50.65(a)(1) requires, in part, that the holders of an operating license shall monitor the performance or condition of SSCs within the scope of the rule as defined by 10 CFR 50.65(b) against licensee-established goals, in a manner sufficient to provide reasonable assurance that such SSCs are capable of fulfilling their intended functions. Such goals shall be established commensurate with safety. When the performance or condition of an SSC does not meet established goals, appropriate corrective action shall be taken.

10 CFR 50.65(b)(1) requires, in part, that the holders of an operating license shall include, within the scope of the monitoring program specified in 10 CFR 50.65(a)(1), safety-related structures, systems, or components (SSC) that are relied upon to remain functional during and following design basis events to ensure the integrity of the reactor coolant pressure boundary, the capability to shut down the reactor and maintain it in a safe shutdown condition, and the capability to prevent or mitigate the consequences of accidents that could result in potential offsite exposure comparable to the 10 CFR, Part 100 guidelines. The scope shall also include non-safety-related SSCs that are relied upon to mitigate accidents or transients, or are used in the plant emergency operating procedures, or whose failure could prevent SSCs from fulfilling their safety-related function, or whose failure could cause a reactor scram or actuation of a safety-related system.

Contrary to the above, as of May 18, 1998, the licensee failed to identify and include the following functions of SSCs within the scope of the licensee's Maintenance Rule program:"

EXAMPLE 1

"Main feedwater recovery following a trip or transient, aligning emergency raw cooling water to centrifugal charging pump 1A-A, and refilling of the CST using the demineralized water system. These SSCs are relied upon during and after design basis events to mitigate the consequences of accidents."

TVA's REPLY TO VIOLATION 98-05-01 - EXAMPLE 1

TVA does not agree with Example 1 of this violation. The three nonsafety-related SSC functions referenced in this example met none of the scoping criteria of the Maintenance Rule. Further, Section M1.1 of the inspection report implies that the cited portions of the systems should be included in the scope of the rule due to their apparent importance in the WBN PSA. This is not a correct application of the scoping guidelines contained within NUMARC 93-01. That document establishes that SSCs are first scoped into the Maintenance Rule Program according to the five scoping criteria and then are evaluated for risk significance. [Reference NUMARC 93-01, Section 9.2]

Prior to the NRC inspection, Emergency Raw Cooling Water System and certain portions of the Main Feedwater System and Demineralized Water System were included in the scope of the Maintenance Rule because only portions of the systems perform safety-related functions. Additionally, failure of portions of the main feedwater system can cause a reactor scram or safety system actuation.

A discussion of each of the three functions cited in this example is provided as follows:

SSC FUNCTION - RECOVERY OF THE FEEDWATER SYSTEM

The ability to recover main feedwater following a reactor trip or transient using the standby main feedwater pump did not meet any of the scoping criteria of 10CFR 50.65(b). The following questions were answered using the guidance provided in Section 8.2.1 of NUMARC 93-01, "Selection of Plant SSCs" as follows:

Section 8.2.1.1, Safety-Related SSCs: Neither the function to recover main feedwater following a reactor trip/transient or the Standby Main Feedwater Pump are safety-related.

Section 8.2.1.2, Nonsafety-Related SSCs that Mitigate Accidents or Transients: Neither the function to recover main feedwater following a reactor trip/transient or the Standby Main Feedwater Pump are relied upon to mitigate accidents or transients as described in the FSAR or related licensing basis documents. In the WBN design, only safety-related SSCs are relied upon to mitigate accidents or transients of nuclear safety significance.

Section 8.2.1.3, Nonsafety-Related SSCs that are used in Emergency Operating Procedures: The guidance in NUMARC 93-01 states, "This step requires an evaluation be performed to identify important nonsafety-related SSCs under utility control that are used in EOPs. For a nonsafety-related SSC to be considered important, it must add significant value to the mitigation function of an EOP by providing the total or a significant fraction of the total ability to mitigate core damage or radioactive release…." The nonsafety-related SSC function recovery of main feedwater, and specifically, the recovery of the standby main feedwater pump, is not considered a significant contributor to a mitigation function of any EOP.

This action to establish feedwater flow is discussed in several function restoration instructions including Emergency Operating Procedure FR-H.1, "Loss of secondary Heat Sink," Step 13 of FR-H.1 follows:

> "13. **ESTABLISH** feedwater:
>
> a. **START** secondary plant pumps as necessary: 1) Hotwell pumps. 2) Condensate booster pumps. 3) DI booster pumps. … c. **ESTABLISH** MFW pump flow: 1) **START** MFW pump turbine OR standby feed pump."

As can be seen from this procedure step, the important function of restoring feedwater flow is accomplished primarily by the use of other secondary system pumps. Thus, there are diverse means available for supplying feedwater to the steam generators with the availability of offsite power. The extent of diversity includes both turbine driven main feedwater pumps as well as lower pressure pumps in the condensate system. This determination was previously made by a licensed operator and was approved by the Expert Panel in meeting No. 98-24.

Section 8.2.1.4, Nonsafety-Related SSCs Whose Failure Prevents Safety-Related SSCs from Fulfilling their Safety-Related Function: This criteria does not apply. There are no failures of the feedwater recovery function that would prevent

safety-related SSCs from fulfilling their safety-related function.

Section 8.2.1.5, Nonsafety-Related SSCs Whose Failure Causes A Reactor Scram or Actuates Safety Systems: This criteria does not apply because the function of feedwater restoration using the standby feedwater pump would have no impact on the RPS or ESFAS initiation.

Based on the preceding discussion, the feedwater recovery function does not meet the scoping criteria of the Maintenance Rule and need not be included within the Maintenance Rule Program.

SSC FUNCTION - ALIGNMENT OF THE ERCW SYSTEM TO PROVIDE ALTERNATE COOLING TO THE CCP 1A-A LUBE OIL COOLER

The ability to align alternate lube oil cooling for the Centrifugal Charging Pump (CCP) 1A-A did not meet any of the scoping criteria of 10CFR 50.65(b) as follows:

Section 8.2.1.1, Safety-Related SSCs: The ERCW components that supply the nonsafety-related function of alternate cooling to the CCP 1A lube oil cooler are classified safety-related only because the components also perform a safety-related function of supplying cooling water to the CCP 1A room cooler. The alternate cooling piping from the room cooler to the lube oil cooler is safety-related for the purpose of pressure retention only. The function of supplying alternate cooling to the CCP 1A lube oil cooler does not cause the affected ERCW components to be classified safety-related.

Section 8.2.1.2, Nonsafety-Related SSCs that Mitigate Accidents or Transients: The ability to supply alternate cooling to the CCP 1A lube oil cooler is not relied upon to mitigate accidents or transients described in the FSAR or related licensing basis documentation. This function would only be used upon loss of both trains of CCS cooling.

Section 8.2.1.3, Nonsafety-Related SSCs that are used in Emergency Operating Procedures: The supply of alternate cooling to the CCP 1A lube oil cooler, is not considered a significant contributor to a mitigation function of any EOP. This alignment/function is not referenced in any EOP or EOP branching procedure at WBN and as a result did not meet the criteria for being scoped into the Maintenance Rule.

Section 8.2.1.4, Nonsafety-Related SSCs Whose Failure Prevents Safety-Related SSCs from Fulfilling their Safety-Related Function: This criteria does not apply. There are no failures of the nonsafety-related function to align alternate ERCW cooling to the CCP 1A-A lube oil cooler that prevent safety-related SSCs from fulfilling their safety-related function (i.e., since CCS is the normal cooling supply to CCP 1A a failure of the alternate cooling function will not directly prevent any safety function from being fulfilled).

8.2.1.5 Nonsafety-Related SSCs Whose Failure Causes A Reactor Scram or Actuates Safety Systems: This criteria does not apply. There are no failures of the nonsafety-related function to align alternate ERCW cooling to the CCP 1A-A lube oil cooler that cause a reactor scram or safety system actuation.

Based on the preceding discussion, the lube oil cooling does not meet the scoping criteria of the Maintenance Rule. TVA has established maintenance for the valves required to accomplish the alternate cooling function within the Augmented Section XI program.

<u>SSC FUNCTION - REFILLING OF THE CONDENSATE STORAGE TANK (CST) USING THE DEMINERALIZED WATER SYSTEM</u>

The ability to refill the CST using the demineralized water system did not meet any of the scoping criteria of 10CFR 50.65(b) as follows:

Section 8.2.1.1, Safety-Related SSCs: Neither the demineralized water system excluding the portion of the system that performs a containment isolation function nor the specific function to refill the CST is safety-related.

Section 8.2.1.2 Nonsafety-Related SSCs that Mitigate Accidents or Transients: The ability to provide demineralized makeup water to refill the CST is not relied upon to mitigate accidents or transients described in the FSAR or related licensing basis documentation. The CST includes an internal standpipe that is designed to ensure that enough water is available to provide the preferred source of water for design basis accidents and transients. The CST has sufficient inventory reserved to accommodate station blackout events without makeup. ERCW supplies the safety-related mitigation function at WBN. In the WBN design, only safety-related SSCs

are relied upon to mitigate accidents or transients of nuclear safety significance.

Section 8.2.1.3, Nonsafety-Related SSCs that are used in emergency operating procedures: The ability to provide demineralized water to the CST is not considered a significant contributor to a mitigation function of an EOP. With the availability of offsite power, there are diverse means for supplying makeup water to the CST. The extent of the diversity includes the demineralized water storage tanks and the Ecolochem trailer, both of which are discussed in procedure SOI-59.01, "Demineralized Water System." In addition, demineralized water can also be supplied by the unit 2 CST, unit 1 condenser hotwell and the fire protection system. This determination was previously made by a licensed operator at WBN and was approved by the Expert Panel in Meeting No. 98-24.

Section 8.2.1.4, Nonsafety-Related SSCs Whose Failure Prevents Safety-Related SSCs from Fulfulling their Safety-Related Function: This criteria does not apply. There are no failures of the nonsafety-related function to provide make-up water to the CST that prevent safety-related SSCs from fulfilling their safety-related function.

Section 8.2.1.5, Nonsafety-Related SSCs Whose Failure Causes A Reactor Scram or Actuates Safety Systems: This criteria does not apply. There are no failures of the nonsafety-related function to provide make-up water to the CST that cause a reactor scam or safety system actuation.

Based on the preceding discussion, the providing of demineralized water to the CST does not meet the scoping criteria of the Maintenance Rule.

CONCLUSION

In summary, the three SSC functions cited in Example No. 1 of this violation meet none of the scoping criteria of the Maintenance Rule. Because these functions do not meet the scoping criteria, the functions do not require classification as risk significant in accordance with NUMARC 93-01. Accordingly, TVA does not agree that not including these specific functions within the scope of the Maintenance Rule program constitutes a violation of the regulation.

EXAMPLE 2

"Pressurizer level, reactor pressure vessel level, and residual heat removal suction relief valve over-pressure protection as applicable for non-Mode 1 conditions. These SSCs are relied upon during and after design basis events to maintain the reactor in a safe shutdown condition."

TVA's REPLY TO VIOLATION 50-390/97-05-01 - EXAMPLE 2

TVA agrees with Example 2 in regard to the monitoring of pressurizer level instrumentation, and reactor pressure vessel level instrumentation in reactor modes other than Mode 1. However, TVA disagrees that its method of monitoring of RHR suction relief valve over-pressure protection in reactor modes other than Mode 1 constitutes a violation example.

RESPONSE FOR PRESSURIZER LEVEL AND REACTOR PRESSURE VESSEL LEVEL

1. Reason For The Violation

The reason for the violation was that non-Mode 1 support functions such as reactor vessel and pressurizer level instrumentation were not recognized by WBN as needing specific monitoring requirements. This condition was due in part to the continuing industry evolution of Maintenance Rule program methods during implementation and the lack of timely recognition of industry experience. However, prior to the baseline inspection, WBN did identify from industry experience (V.C. Summer) the need to develop specific monitoring for these and potentially other SSC functions during shutdown.

2. Corrective Steps Taken And Results Achieved

Prior to the NRC Baseline Inspection, the Maintenance Rule Expert Panel initiated action to address the monitoring of reactor vessel and pressurizer level instrumentation and to determine whether any additional functions require monitoring during non-Mode 1 conditions. These actions were subsequently incorporated into site corrective action document WBPER980600. Specific reliability monitoring has been developed for the reactor pressure vessel and

pressurizer level instrumentation. TVA has revised procedure TI-119, "Maintenance Rule Performance Indicator Monitoring, Trending, and Reporting," to incorporate these monitoring requirements.

3. **Corrective Steps That Will Be Taken To Prevent Recurrence**

WBN will complete a review to determine whether any additional functions require specific monitoring during shutdown conditions by September 28, 1998. (This completion date will be well within the time frame required to support identification of other non-Mode 1 functions needed for the scheduled refueling outage in February 1999.)

4. **Date When Full Compliance Will Be Achieved**

In regards to this portion of the violation example, WBN will be in full compliance by September 28, 1998.

5. **Request For Self Identification Credit**

Section VII.B.1 of the NRC Enforcement Policy NUREG-1600, Revision 1, provides credit for conditions identified by the licensee. This guidance was recently emphasized in the July 27, 1998, Enforcement Guidance Memorandum.

Both reactor pressure vessel and pressurizer level monitoring during shutdown conditions were identified to the Maintenance Rule Expert Panel in a meeting on May 14, 1998, prior to NRC's baseline inspection. The issue was identified as part of an extensive review of the lessons learned from other utility baseline inspections. As a result of the discussion in the May 14 meeting, action number 98-22-01 was assigned to the system engineer responsible for the reactor coolant system. The discussion in the meeting is summarized as follows:

> "The corporate representative discussed an industry experience issue from the Maintenance Rule baseline inspection at V. C. Summer in May 1997. The issue pertains to monitoring of reactor coolant level during shutdown conditions. It was noted that GO-9 requires two independent means be available for monitoring reactor vessel level during drain down activities. The chairman recommended that an action be assigned to the system engineer to determine whether 1) reactor vessel level should be noted as a specific function in TI-119, 2)

reactor vessel level monitoring should be considered a risk significant function during shutdown conditions, and 3) additional specific monitoring is needed to address the reliability of other monitoring instruments during shutdown conditions."

Additionally, the minutes of the meeting reflected that most of the discussion focused on reactor vessel level because the panel recognized that pressurizer level was of less risk importance. The panel required that both the reactor vessel level and the pressurizer level functions; and possibly other functions would be addressed in the corrective action. During the inspection, Expert Panel action No. 98-22-01 was transferred to the corrective action program as WBPER980600 for development of the full extent of condition and any specific additional corrective actions required. The panel expected that all corrective action would be complete by the next scheduled shutdown.

RESPONSE FOR RHR SUCTION RELIEF VALVE OVERPRESSURE PROTECTION

As stated above, TVA disagrees with the portion of Example 2 related to this function. The RHR suction relief valve over-pressure protection function was being effectively monitored in accordance with Attachment 19 of procedure TI-119, "Maintenance Rule Performance Indicator Monitoring, Trending, and Reporting," with train level unavailability and reliability performance criteria. This performance criteria is reflected by Section 2.0 of TI-119 which specifies unavailability performance criteria as 0.01 per train and unreliability performance criteria as not more than one functional failure per 24 month interval.

Any failure of the over-pressure protection function could result in a functional failure of the RHR train(s) required in-service at the time of failure. The listing of components in the attachment of TI-119 was provided as a convenience item for the system engineer. The table aided the system engineer by identifying components into frequently or infrequently tested groups for SSPI requirements based on surveillance test intervals. These components also correspond closely with the key components requiring reporting of reliability data to the INPO Equipment Performance and Information Exchange database. Whether or not 0-RFV-74-505 was in this table does not affect the monitoring that is stated in TI-119 for the RHR functions specified.

The RHR pump suction relief valve 0-RFV-74-505 was inadvertently omitted from the detailed listing in Table 3 of

Attachment 19 of TI-119. This omission was noted by the inspection team and an enhancement to the procedure was made by TVA prior to the conclusion of the baseline inspection. Notwithstanding the omission of 0-RFV-74-505 from Table 3, the existing unreliability monitoring was sufficient to determine the effectiveness of preventive maintenance on the functions of the valve.

II. RESTATEMENT OF VIOLATION 50-390/98-05-03 (Violation C)

"10 CFR 50.65(a)(1) requires, in part, the holders of an operating license shall monitor the performance or condition of SSCs within the scope of the monitoring program, as-defined in 10 CFR 50.65(b), against licensee-established goals in a manner sufficient to provide reasonable assurance that such SSCs are capable of fulfilling their intended functions. Such goals shall be established commensurate with safety. When the performance or condition of an SSC does not meet established goals, appropriate corrective action shall be taken.

10 CFR 50.65(a)(2) requires, in part, that monitoring as specified in 10 CFR 50.65(a)(1) is not required where it has been demonstrated that the performance or condition of an SSC is being effectively controlled through the performance of appropriate preventive maintenance, such that the SSC remains capable of performing its intended function.

Contrary to 10 CFR 50.65(a)(2), as of July 10, 1996, the time that the licensee elected to not monitor the performance or condition of certain SSCs against established goals pursuant to the requirements of Section (a)(1), the licensee failed to demonstrate that the performance or condition of SSCs within the scope of 10 CFR 50.65 had been effectively controlled by performing appropriate preventive maintenance. Specifically, the licensee failed to adequately demonstrate that the performance or condition of functions of the auxiliary feedwater system and the emergency raw cooling water system had been effectively controlled by performing appropriate preventive maintenance in accordance with the requirements of 10 CFR 50.65 (a)(2). The licensee used inadequate measures in the demonstration to evaluate the effectiveness of preventive maintenance on these SSCs in that surveillance testing unavailability time was not monitored for these SSCs. As such, all planned unavailability was not considered even though SSC functions during these times were unable to perform as required."

TVA's REPLY TO VIOLATION 50-390/98-05-03 (Violation C)

TVA does not agree that the methodology used for monitoring AFW and ERCW systems against site performance criteria represents a violation of the Maintenance Rule.

REGULATORY FRAMEWORK

The Statements of Consideration for the Maintenance Rule [56FR31312] fully demonstrate that the Commission intended licensees to have broad discretion and flexibility in the formation and implementation of maintenance programs as well as the programs for monitoring the effectiveness thereof. The Commission's intention was carried forward to Regulatory Guide 1.160, Revision 2, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," (Section 1.10) which allows the use of methods other than those endorsed by the Regulatory Guide to accomplish the objectives of the rule. This endorsement is carried further to Inspection Module 62706 used for the recent inspection. As shown in detail below, TVA's methodology clearly meets the objective of the rule for monitoring (a)(2) systems against site performance criteria.

As stated in Violation C, 10 CFR 50.65 (a)(2) requires that licensees demonstrate that systems not in (a)(1) status are effectively controlled through the performance of appropriate preventive maintenance, such that the SSC remains capable of performing its intended function. The rule does not dictate specific monitoring methods to demonstrate adequate preventive maintenance. Further, the violation raised no issues on the adequacy of the AFW or ERCW systems to perform their function or on the performance of preventive maintenance for those systems. Rather, the NOV judges TVA's demonstration of effectiveness of preventive maintenance to be inadequate because of the specific methodology used to monitor unavailability of the systems.

The issue arises from the definition of "unavailability" provided in NUMARC 93-01 which defines unavailability (for purposes of availability or reliability calculations) as:

> "The numerical complement of availability. An SSC that cannot perform its intended function. An SSC that is required to be available for automatic operation must be available **and respond without human action."** [emphasis added]

TVA participated in the detailed development of NUMARC 93-01. Discussions with the TVA individual involved indicated that the intent of this section of the definition was to address degraded but in-service components which required operator intervention to enable the functions to be met. It was not envisioned at the time that this definition would be applied to fully functional SSCs undergoing mandatory surveillance testing that could be immediately restored by dedicated operators using established procedures.

It is clear that there are differences in risk contribution between a situation where a component requires corrective maintenance due to degraded or failed condition and a situation where a component may be fully functional but aligned for Technical Specification required surveillance testing (short time delay to realign). It is normally not considered that periodic, short duration surveillance testing under procedural and direct operator control, provides any measurable increase to plant risk (although Technical Specification LCO's are conservatively entered when SSC's are placed in off-design configurations for testing). Similarly, unavailabilities are conservatively considered in the WBN PSA, i.e., the function is assumed unavailable during testing with no consideration for realistic short term restoration in the event of an accident, as the model does not contain provisions to account for a short time delay in providing the function. Inclusion of excess conservatism (i.e., counting all surveillance test hours as unavailable hours) against performance criteria could result in inappropriately reducing beneficial preventive maintenance activities in an attempt to stay within lower remaining unused unavailabilities.

TVA was well aware of the intent of the NUMARC 93-01 definition section when its program was developed. The method used was consistent with the methodology used by INPO for unavailability monitoring. Accordingly, no exception to NUMARC 93-01 was identified to the inspection team at the beginning of the WBN inspection

It was also the intent of the Commission during the issuance of the rule to provide flexibility to prevent duplication of data collection and reporting [56 FR 31312]. TVA's use of the INPO/WANO methodology was established on the basis of this principle. Under the INPO/WANO guidelines, "unavailability" is clarified as follows:

> "Unavailable hours are not counted for surveillance tests in which a train can be aligned to its demand position in a

matter of minutes from the control room or the train can be aligned to its demand position in a matter of minutes by an operator in the field who is dedicated to this task by a surveillance procedure." [INPO 96-003, WANO PERFORMANCE INDICATOR PROGRAM UTILITY DATA COORDINATOR REFERENCE NOTEBOOK, PAGE A-32]

NRC's previous endorsement of the INPO/WANO methodology is discussed below.

The specific testing which was the subject of the inspection team's concern involved the AFW system and the ERCW system as shown in Table 1 below:

TABLE 1

PROCEDURE NUMBER	TYPE OF TEST	NO. OF OPS	NO. OF COMPS TO RESTORE	TIME TO RESTORE	TIME OF SI NOT COUNTED
1-SI-3-21/22	AFW Transfer Switch Logic Calibration	1	2 - Handswitch & transfer switch on motor control center	3 mins.	1.5 hrs/yr/pump
1-SI-3-902	TDAFW Performance Test	2	1 - trip and throttle valve	3 mins.	2 hrs/yr
1-SI-3-910	TDAFW Pump Suction Check Valve Test	2	3 manual valves (Local) 1 Control Room Handswitch	<5 min.	5 hrs/yr
1-SI-3-914/915	MDAFW pump Suction Check Valve A/B Test	2	3 manual local valves 1 Control Room Handswitch	<5 min.	10 hrs/yr/pump
O-SI-67-901/902/ 903/904/A-B	ERCW Pump Performance Test	2	2 push button valves	~1 min.	4 hrs/yr/pump

As can be inferred from the above data, the worst case train impact would be an additional 0.18% unavailability.

As shown in the discussion which follows, TVA's method meets the broad performance standards of the rule and provides a reasonable demonstration that the reliability of the AFW and ERCW systems were effectively controlled through the performance of appropriate preventive maintenance, such that the SSCs remained capable of performing their intended functions.

DEMONSTRATED RULE COMPLIANCE

Reliability and condition monitoring against performance criteria are the principle means for determining the effectiveness of preventative maintenance under 10CFR50.65(a)(2). The absence of preventive maintenance or ineffective preventative maintenance can result directly in the failure or degradation of the equipment.

Unplanned unavailable hours associated with functional failures are accounted for through the reliability monitoring that is being performed. The unavailable hours referred to in this violation example involve a portion of the unavailability associated with certain routinely scheduled surveillance tests which require immediate and limited operator action to return the equipment to service. These surveillance tests are performed to assure the continuing reliability of the equipment and do not involve failure or degradation of the affected equipment. Should a failure be detected through test performance, the unavailable hours are counted against the performance criteria.

Unavailability monitoring supports the ability to determine whether the balance between planned unavailability and unreliability is appropriate in accordance with 10CFR50.65(a)(3). TVA considers that the existing unavailability monitoring practice is more than sufficient to monitor the balance between unavailability and reliability with no adverse impact on safety.

Auxiliary Feedwater System: To demonstrate rule compliance, the following chart for the Auxiliary Feedwater System is provided. The values used were from June 1996 through the May 1998 and represent the data at the time of the inspection. The performance criteria was set to coincide with the PSA value. By plotting the actual unavailability (without surveillance times) plus the surveillance times for the AFW train, it can be seen that only the margin between the actual hours and the performance criteria would be reduced with the addition of the surveillance times.

TABLE 2

AUXILIARY FEEDWATER SYSTEM PERFORMANCE CRITERIA JUNE 1996 TO MAY 1998			
	Motor Driven AFW Train A	Motor Driven AFW Train B	Turbine Driven AFW Train C
Performance Criteria	243 hours	243 hours	320 hours
Actual Unavailability hours as defined by TVA	123 hours	153 hours	113 hours
Estimated surveillance hours not counted by TVA	23 hours	23 hours	14 hours
Margin without surveillance hours counted (TVA method)	120 hours	90 hours	207 hours
Margin with surveillance hours counted (NRC interpretation)	97 hours	67 hours	193 hours

To address the safety significance of this issue, TVA has evaluated the effect on risk where the additional AFW surveillance test hours were added directly to the performance criteria. The additional surveillance test hours increase the core damage frequency by less than 0.5%.

ERCW System: In order to perform required quarterly valve surveillance testing, it is necessary to temporarily crosstie two trains of ERCW. This is done by realigning certain loads in the train to be tested to the opposite train. The crosstie of ERCW trains A and B to support the required testing does not result in the inability to supply sufficient cooling water to components in either train. Therefore, unavailable hours are not counted when the trains are crosstied for the purpose of performing pump performance testing.

The basis for this position is Safety Evaluation WBPLMN-95-067-1, which establishes that when the trains are crosstied for testing of one train, the opposite train is capable of cooling the safety-related equipment heat loads of both trains required for response to, and mitigation of, an accident. Prior to the issuance of the safety evaluation, calculations were performed which support this conclusion.

Independent of the functional ability to supply cooling flow to required loads, LCO 3.7.8 conditions/actions for one train being legally inoperable are entered to limit the time allowed in the crosstie configuration. As discussed earlier,

dedicated operators are stationed to immediately restore the second train should it be required. TVA does not consider the LCO tracking activity to impact the Maintenance Rule monitoring of actual availability.

Conclusion: The combination of unavailability and reliability monitoring that is currently being performed for AFW and ERCW systems at WBN provides reasonable assurance that the performance and condition of SSCs is being effectively controlled in accordance with 10CFR50.65(a)(2). Furthermore, the unavailability monitoring as presently performed is sufficient to analyze the balance between unavailability and reliability when required.

REGULATORY ANALYSIS

TVA's evaluation of this violation example has determined that NRC's position is not supported by current and previous NRC Maintenance Rule guidance, by NRC's Inspection Manual, or by NEI's evaluation of the issue.

Maintenance Rule Guidance

TVA usage of the INPO/WANO definition for unavailability is consistent with the statement of considerations goal to prevent duplicate monitoring. [56 FR 31312] The specific TVA methodology was previously endorsed by NRC's letter from S. C. Black to R. Ng dated June 29, 1994. That letter endorsed NEI prepared Questions and Answers resulting from industry workshops on implementation of the Maintenance Rule.

Question 47 of the workshops specifically asks in part:

> "Will the application of the INPO Plant Performance indicators (PPI) procedures to Maintenance Rule SSCs satisfy the Maintenance Rule monitoring requirements (e.g., EDG, ECCS, AFW availability)?"

The prepared response clearly allows the INPO methodology (especially for AFW) with the answer as follows:

> "Yes. INPO SPPI procedures can be used to satisfy the Maintenance Rule requirements for those systems (i.e., diesel, auxiliary feedwater, safety injection) which are being reported to INPO."

Further, NRC's current Web Page for clarifications of the Maintenance Rule (http://www.nrc.gov/NRR/mrule/mrhome.htm)

provide the following issue and answer under the frequently asked questions section, again supporting TVA's methodology:

"Issue: May any operator actions be credited when determining SSC unavailability?

Answer: The definition of unavailability provided in NUMARC 93-01, Rev. 2, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants", which is endorsed by Reg. Guide 1.160, Rev 2, states in part that, "an SSC that is required to be available for automatic operation must be available and respond without human action. **Credit may be taken for operator action provided the response is rendered in a timely manner by a dedicated plant operator and that the prescribed action is appropriately controlled by established procedures."** [emphasis added]

During the inspection, the team referenced an "internal" 1991 NRC memo which limits operator action to one operator taking a single action. As can be seen in Table 1 above, these tests slightly exceed this criterion. The use of a cited NOV to address this level of difference in methodology seems to clearly contradict the stated Commission intention of giving licensees "broad discretion and flexibility" in the implementation of the Maintenance Rule. It also seems unfair to hold licensees to this "internal" interpretation in the face of these above published interpretations and the Commission's intent.

Inspection Manual Guidance

NRC guidance for enforcement of the performance based Maintenance Rule is contained in Appendix A of the 1995 revision of Inspection Procedure 62706. This guidance again recognized the Commission's intended implementation flexibility. A distinction in enforcement is provided by comparing the following examples of what "would" and what "would not" not be considered violations:

"Examples of Activities That Would Be Violations of the Maintenance Rule: … 3. Failure to establish a monitoring program that adequately supports the goals set under 10 CFR 50.65 (a)(1). The monitoring program must be sufficient in scope and frequency to adequately support a determination as to whether SSCs are meeting their assigned goals. Lack of such a monitoring program would be a violation."

"Examples of Activities That Would Not Necessarily Be Violations of the Maintenance Rule: … 3. The details of the monitoring program would not be subject of enforcement action as long as the monitoring was sufficient to adequately support the goals and provided for an evaluation whenever a goal was exceeded."

The clear distinction between the above examples applies directly to this proposed violation example and clearly indicates that citing a violation based on the use of a different methodology for unavailability monitoring is unwarranted and contrary to inspection guidance.

NEI Evaluation

Subsequent to the WBN NRC Maintenance Rule Baseline inspection, TVA requested NEI's clarification of the definition of "unavailability." By letter dated July 27, 1998, TVA provided NEI with a detailed description of the issue regarding unavailability monitoring as it applied to NUMARC 93-01. By letter dated July 31, 1998, NEI concurred with TVA's interpretation as follows:

"We have reviewed your letter and concur that your approach with regard to not counting unavailability during surveillance testing from non-degraded equipment with the conditions as stated, is a reasonable interpretation of the requirements of 10 CFR 50.65."

Further, NEI stated that a revision was in process to clarify the definition in NUMARC 93-01 indicating the following:

"NRC has indicated that the existing definition in NUMARC 93-01 can be interpreted to be overly restrictive, and has requested we revise it. Our intent is to achieve a clear definition that is consistent with your approach and the INPO approach. This revision will clarify that unavailability need not be counted for surveillance of non-degraded equipment when procedural guidance is in place to restore the safety function in a time consistent with its need during a postulated transient or accident."

REQUEST FOR WITHDRAWAL OF NOV

The Maintenance Rule clearly allows and even encourages innovative approaches to meeting objectives of the rule. As demonstrated above, the TVA method clearly accomplishes the rule objective in

(a)(2) to monitor performance of ERCW/AFW to TVA established performance criteria. TVA's unavailability monitoring methodology is consistent with NRC guidance published in 1994 and 1998, as well as NUMARC/NEI guidance.

In view of the above, TVA believes that it has established an effective program to monitor the (a)(2) SSCs within the scope of the Maintenance Rule and, therefore, the program meets the purpose and intent of that rule. TVA respectively requests that NRC withdraw this violation example.

ENCLOSURE 2
TENNESSEE VALLEY AUTHORITY
WATTS BAR NUCLEAR PLANT (WBN)
UNIT 1

INSPECTION REPORT NUMBER 50-390/98-05

LIST OF COMMITMENTS

WBN will complete a review to determine whether any additional functions require specific monitoring during shutdown conditions by September 28, 1998. (This completion date will be well within the time frame required to support identification of other non-Mode 1 functions involving needed for the scheduled refueling outage in February 1999.)