Tennessee Valley Authority, Post Office Box 2000, Spring City, Tennessee 37381

FEB 16 1996

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

Gentlemen:

In the Matter of) Docket Nos. 50-390
Tennessee Valley Authority)

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1 - FACILITY OPERATING LICENSE NPF-90 - LICENSEE EVENT REPORT (LER) 50-390/96001

The enclosed report provides details regarding a failure to identify equipment conditions which exceeded specified limits. Submittal of the report is in accordance with 10 CFR 50.73(a)(2)(i).

Sincerely,

D. V. Kehoe
Nuclear Assurance
and Licensing Manager

Enclosure
cc: See page 2

IE22
1/1

FEB 16 1996

BSS:JV:RNM
cc (Enclosure):
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NRC FORM 366 (4-95)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 04/30/98
ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20603.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Tennessee Valley Authority, Watts Bar Nuclear Plant - Unit 1	05000390	1 OF 9

TITLE (4)

Failure To Perform Valve Position Verification Surveillance Within the Required Frequency

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
01	17	96	96	001	00	02	16	96		05000
									FACILITY NAME	DOCKET NUMBER
										05000

OPERATING MODE (9)	3
POWER LEVEL (10)	00

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)

	20.2201(b)		20.2203(a)(2)(v)	X	50.73(a)(2)(i)		50.73(a)(2)(viii)
	20.2203(a)(1)		20.2203(a)(3)(i)		50.73(a)(2)(ii)		50.73(a)(2)(x)
	20.2203(a)(2)(i)		20.2203(a)(3)(ii)		50.73(a)(2)(iii)		73.71
	20.2203(a)(2)(ii)		20.2203(a)(4)		50.73(a)(2)(iv)		OTHER
	20.2203(a)(2)(iii)		50.36(c)(1)		50.73(a)(2)(v)		Specify in Abstract below
	20.2203(a)(2)(iv)		50.36(c)(2)		50.73(a)(2)(vii)		or in NRC Form 366A

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Rebecca N. Mays, Regulatory Licensing Engineer	(423)-365-3855

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)			EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
	YES (If yes, complete EXPECTED SUBMISSION DATE).	X NO				

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

Surveillance Requirement (SR) 3.7.8.1 and SR 3.5.2.2 requires verification every 31 days of each essential raw cooling water (ERCW) and emergency core cooling system (ECCS) manual, power-operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position. On January 17, 1996, Operations personnel confirmed that an ERCW flowpath valve to auxiliary control air compressor 1B-B was not listed in the surveillance (SI) that satisfies the requirements for SR 3.7.8.1. The plant was in Mode 3 with RCS pressure at 2235 psig and temperature at 557°F. Evaluation of the valve position indicated that the valve was in the correct position. A review to determine extent of condition, identified 54 additional ERCW valves that were not in the SI or locked valve program. Five ECCS system bypass/recirculation line valves were also identified as not being included in the SI to implement SR 3.5.2.2. These valves were not on the primary flow path and not obvious to the procedure writer that the valves should be included. The root cause has been determined to be a failure to follow existing procedures including inadequate technical reviews. Corrective measures include a briefing to managers responsible for technical specification procedures and qualified technical reviewers, to warn of events such as these and counseling the involved writers and technical reviewers.

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Watts Bar Nuclear Plant, Unit 1	05000390	96	001	00	

TEXT *(If more space is required, use additional copies of NRC Form 366A)* (17)

I. PLANT CONDITIONS:

At approximately 1000 hours (EST) on January 17, 1996, Watts Bar Nuclear Plant Unit 1 was in Mode 3 with reactor coolant system (RCS) (AB) pressure at 2235 psig, RCS temperature at 557°F, and a boron concentration of approximately 2013 ppm, preparing to enter Mode 2. Operations personnel identified that outlet valve 2-THV-67-683 (HCV) in the essential raw cooling water (ERCW) (BI) flowpath to auxiliary control air compressor 1B-B (LE) was not listed in the surveillance instruction that implements SR 3.7.8.1.

II. DESCRIPTION OF EVENT

A. Event

1. Failure to fully implement SR 3.7.8.1:

SR 3.7.8.1 requires verification every 31 days that each ERCW manual, power operated, and automatic valve in the flow path servicing safety related equipment, that is not locked, sealed, or otherwise secured in position, is in the correct position while in Modes 1, 2, 3, and 4. Surveillance Instruction (SI) 1-SI-67-1, "ERCW Valves Servicing Safety Equipment: Position Verification," is performed to satisfy the requirements in SR 3.7.8.1. On January 17, 1996, it was determined that the required position verification for SR 3.7.8.1 had not been performed for valve 2-THV-67-683, was not in surveillance instruction 1-SI-67-1, nor was the valve listed in the Plant Administrative Instruction (PAI) 2.14, "Administrative Control of Locked Valves and Breakers." The investigation also revealed that the valve had been verified as being in the correct position by 0-SI-32-902-B, "Essential Raw Cooling Water Valve Full Cycle Exercising During Normal Operation - Train B," which is performed on a frequency of 92 days for the auxiliary control air compressor 1B-B. The SI had been performed last on December 19, 1995, 30 days prior to the event. The valve position verification was currently within the 31 day SR 3.7.8.1 requirement, however, the valve had been out of frequency before that time. Operations personnel subsequently identified fifty-four ERCW valves that were not in the SI or the PAI following an extended review of the remaining valves in the ERCW system. Change notices (CN) were issued to add the 55 valves to SI 1-SI-67-1 to verify valve position. Fifty-two of the 55 valves were throttle valves that were intentionally removed from the initial issue of the SI to be administratively locked and placed in the locked valve program. However, the system operating instruction (SOI) was not revised to lock the throttle valves, therefore, the valves were not locked or added to the locked valve program. The SOI was in agreement with the as found valve alignment. The remaining 3 valves were inadvertently dropped during a revision to the SI. The 55 valves were in the correct position when the SI was performed.

2. Failure to implement SR 3.5.2.2

Based on the previously described event associated with SR 3.7.8.1, a review of the remaining four systems in the technical specifications that require position verification every 31 days was initiated to ensure that the system valves were either in the appropriate SI or

II. DESCRIPTION OF EVENT (continued)

A. Event

2. Failure to implement SR 3.5.2.2 (continued)

the PAI. The systems reviewed were 1) containment spray (CS) (BE), 2) emergency core cooling system (ECCS) (BP, CB, BQ), 3) auxiliary feedwater (AFW) (BA), and 4) component cooling system (CCS) (CC). No valves were identified during that review. Operations personnel that were aware of the event, later questioned the alignment of five valves in the ECCS system that were not in the surveillance instruction, 1-SI-63-8, "ECCS Valve Alignment Verification," or locked, sealed or secured in position. ECCS is required for Modes 1, 2, and 3. These 5 valves were not in the direct flow path. Two valves were on the bypass line of the residual heat removal (RHR) (BP) heat exchanger and the remaining three valves were on the recirculation line of the centrifugal charging pump. Since the valves could potentially affect the direct flow path, the valves were conservatively added to the SI by a change notice and the valves were found to be in the correct position.

Incident Investigation (II) W-96-001 was initiated to document both events in the TVA Corrective Action Program.

B. Inoperable Structures, Components, or Systems that Contributed to the Event

There were no structures, components, or systems inoperable at the start of the event that contributed to the event.

C. Dates and Approximate Times of Major Occurrences

1. Dates and times associated with failure to implement of SR 3.7.8.1

December 15, 1995, 1235 hours (EST), - Entered Mode 4.

December 28, 1995, 1615 hours (EST), - Entered Mode 3.

January 15, 1996 - NRC Resident Inspector questioned the inconsistency in the outlet valve configuration to the auxiliary control air compressors of the ERCW outlet valves.

(Note: No investigation was started until later the following day. Operations management considers this to be an untimely response to a potential problem).

January 17, 1996, approximately 1000 hours (EST), - Operations determined 1-SI-67-1 did not include the valve, however, the ERCW valve to the auxiliary control air compressors was in frequency by another SI. An incident investigation was initiated.

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TEXT *(If more space is required, use additional copies of NRC Form 366A)* (17)

C. Dates and Approximate Times of Major Occurrences (continued)

1. Dates and times associated with failure to implement of SR 3.7.8.1 (continued)

January 17, 1996, 1620 hours (EST), - Senior Reactor Operator (SRO) notified the Shift Operations Supervisor (SOS) that the extent of condition for the SI, included 54 additional ERCW valves that were not in the SI. The SOS logged entry into SR 3.0.3 to complete surveillance within the 24 hour requirement.

January 18, 1996, 1114 hours (EST) - Assistant Shift Operation Supervisor (ASOS) notified that extent of condition evaluation completed for similar flow verification SI. No other deficiencies were identified.

January 18, 1996, 1200 hours (EST) - The performance of 1-SI-67-1 CN-A, which added the valves, was completed.

January 18, 1996, 1848 hours (EST), - Reactor critical.

January 19, 1996, 1830 hours (EST), - ASOS notified that 2 Unit 2 ERCW throttle valves required for Unit 1 operation were found by the incident investigation team members and inadvertently omitted from 1-SI-67-1 by the original CN. Entered requirements for SR 3.0.3 to complete surveillance within the 24 hour requirement.

January 20, 1996, 0510 hours (EST), - 1-SI-67-1, CN-C completed to support SR 3.7.8.1 requirements.

2. Dates and times associated with failure to implement of SR 3.5.2.2

January 20, 1996, 0300 hours (EST), - ASOS notified of 2 RHR bypass valves in the ECCS that were not included in 1-SI-63-8. ASOS entered SR 3.0.3 to verify position within 24 hours.

January 20, 1996, 0510 hours (EST), 1-SI-63-8 change notice issued and procedure performance completed to verify the 2 valves were in the correct position.

January 20, 1996, 0548 hours (EST) - Exited SR 3.0.3.

January 20, 1996, 1420 hours (EST) - ASOS entered SR 3.0.3 due to 3 CVCS recirculation line valves in the ECCS required to be verified open and not included in 1-SI-63-8.

January 20, 1996, 1636 hours (EST) - ASOS notified that the 3 valves were now locked open.

2. Dates and times associated with failure to implement of SR 3.5.2.2 (continued)

January 21, 1996, 0248 hours (EST) - ASOS notified that the 3 CVCS valves had been added to the locked valve program and the system operating instruction. Exited SR 3.03.

D. Other Systems or Secondary Functions Affected

No other systems or secondary functions were affected by this event.

E. Method of Discovery

On January 15, 1996, an NRC inspector questioned the difference in the alignment of the auxiliary control air compressor 1B-B outlet valve and the outlet valve on compressor 1A-A. The outlet valve on compressor A was locked in position while the outlet valve on compressor 1B-B was not locked in position. Valve 2-THV-67-683 was opened but not locked. A review of associated SI, PAI, and drawings found an additional 54 valves that were neither locked nor in the SI. Members of the incident investigation team were verifying that the valves were either in the SI or PAI and identified two ERCW valves that had been marked by the procedure writer but failed to be transposed to the SI. A total of 55 ERCW valves were identified. The five ECCS valves were identified by Operations personnel that were aware of the event and questioned the correct alignment of the bypass and recirculation line valves.

F. Operator Actions

The actions taken by Operations personnel related to this event are discussed in section V, Corrective Actions, item 1, Immediate Corrective Actions.

G. Automatic and manual safety system responses

There were no automatic or manual safety system responses and none were necessary.

III. CAUSE OF EVENT

A. Immediate Cause

The immediate cause of this event was the failure to include 55 valves in the ERCW system that were not locked and were not in the surveillance instruction to verify valve position.

B. Root Cause

1. Failure to implement SR 3.7.8.1

The primary cause of this event was the failure to follow existing procedural requirements for review and issue of procedures. The 52 throttles valves were intentionally removed as a

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TEXT *(If more space is required, use additional copies of NRC Form 366A)* (17)

III. CAUSE OF EVENT (continued)

B. Root Cause (continued)

1. Failure to implement SR 3.7.8.1 (continued)

result of an Operation's comment during the initial review and comment period for 1-SI-67-1 in March 1995. These valves were to be administratively locked and placed in the locked valve program. The surveillance instruction was issued August 1995 at system turnover. The practice of issuing procedures that were dependent on procedures not yet issued was generally accepted during the system turnover period because procedures could not be issued concurrently by the system turnover process. The system operating instruction should have been revised to lock the valves and add the valves to the locked valve program. The other three valves were inadvertently deleted during a revision to the SI because of an inadequate technical review of the procedure revisions.

2. Failure to implement SR 3.5.2.2

The primary cause of this event was the failure to follow existing procedural requirements for review and issue of procedures. The 5 valves were not in the original issue of the SI because the valves are not obvious to ECCS flow path requirements. The valves were on bypass and recirculation lines.

IV. ANALYSIS OF EVENT - ASSESSMENT OF SAFETY CONSEQUENCES

A. General

There were no failures that rendered a train or a safety system inoperable. Each of the valves were found to be in the correct position. Based on this, there were no safety implications to the public related to the event.

B. Failure to implement SR 3.8.7.1

During normal operations and normal shutdown, the ERCW system provides a heat sink for the removal of process and operating heat from safety related components. The ERCW system is balanced as a whole system, for worst case operating conditions. The 52 throttle valves were added to the ERCW system to throttle the flow to the chiller and cooler components. If the valves were misaligned in the closed position, the component would not meet the cooling requirements of its intended function. These valves are manually operated valves which require an approved work document to change their position. Therefore, a change in the position would be evaluated and recognized. The valves were aligned in position during the SOI walk down at system turnover, and during verifications resulting from this event, found to be in the correct position.

IV. ANALYSIS OF EVENT - ASSESSMENT OF SAFETY CONSEQUENCES (continued)

B. Failure to implement SR 3.8.7.1 - (continued)

Two of the valves are isolation valves. One of the subject valves is on the supply line to the shutdown board room chiller (CHU) B. This valve is a manual control valve which should not have its position changed unless evaluated by an approved work document. The other isolation valve was on the return line from the electrical board room chiller, shutdown board room chiller package, and several air cooling units (ACU). This valve is also a manual control valve which should not have its position changed unless evaluated by an approved work document.

The final valve is a containment spray motor operated flow control valve (FCV). The correct alignment is in the closed position. If the valve failed open the chemistry of the containment spray heat exchanger lay-up water would be altered. The valve position is monitored in the main control room. If containment spray was needed, the water chemistry would not prevent the system from performing its intended function. Therefore, there is no safety implication for this valve.

C. Failure to implement SR 3.5.2.2

The ECCS function is to provide core cooling and negative reactivity following an accident. There are 3 subsystems, (RHR, CVCS, and safety injection), consisting of two 100% capacity trains that are interconnected and redundant such that either train is capable of supplying 100% of the flow required to mitigate the accident. This interconnecting and redundant subsystem design provides the operators with the ability to utilize components from opposite trains to achieve the required 100% flow to the core. The five subject ECCS valves are manually controlled valves and can only change position under administrative control. For this event, the valves were found to be in the proper position such that no safety implications existed.

V. CORRECTIVE ACTIONS

A. Immediate Corrective Actions

1. Failure to implement SR 3.7.8.1

Upon identification that SR 3.7.8.1 had been implemented without a complete list of valves that were not locked, an extent of condition for the ERCW system was performed. Change notices were issued to add the missing valves to the implementing SI and the SI was performed to verify position of the valves. Fifty-four of the 55 valves in the ERCW have been administratively locked. The SOI was revised to identify the valves as locked in position and the PAI was revised to add the valves. A change notice was initiated to add the one flow control valve to the SI. A review was also conducted of the other systems in the technical specifications that required valve position verification every 31 days.

V. CORRECTIVE ACTIONS (continued)

A. Immediate Corrective Actions (continued)

2. Failure to implement SR 3.5.2.2

Upon identification that SR 3.5.2.2 had been implemented without the five ECCS valves that were not in the primary flow path, CNs were issued to add the valves to the SI and verify the correct position. Three of the ECCS valves were revised in the SOI to be administratively lock in position and placed in the PAI for locked valve program. The other two valves remained in the SI.

3. Untimely Response to Potential Problem

Operations Support manager discussed with the involved personnel, the expectation for immediate resolution of concerns expressed to Operations by Site personnel.

B. Corrective Actions to Prevent Recurrence

1. Department managers assigned the responsibility for issuing technical specifications implementation procedures and qualified technical reviewers will be briefed to ensure awareness of this event with emphasis on the cause and effect of the procedural noncompliance that resulted in the event. Samples of improper independent review and management expectations concerning the independent review process will be included in the briefing process.

2. The involved technical reviewers and procedure writers will be counseled on attention to detail and the circumstances that lead to this event.

3. Operations Manager will issue a briefing memo to Operations personnel defining the expectation to immediately address concerns expressed to Operations by Site Personnel. The understanding of this expectation will be documented by signature.

VI. ADDITIONAL INFORMATION

A. Failed Components

1. Safety Train Inoperability

There were no failures that rendered a train or a safety system inoperable.

VI. ADDITIONAL INFORMATION (Continued)

2. Component/System Failure Information

a. Method of Discovery of Each Component or System Failure:

There were no component failures involved.

b. Failure Mode, Mechanism, and Effect of Each Failed Component:

There were no component failures involved.

c. Root Cause of Failure:

There were no component failures involved.

d. For Failed Components With Multiple Functions, List of Systems or Secondary Functions Affected:

There were no component failures involved.

e. Manufacturer and Model Number of Each Failed Component:

There were no component failures involved.

B. Previous Similar Events

Licensing Event Report (LER) 95-001 addressed missed surveillances by having the component in the wrong surveillance instruction.

VII. COMMITMENTS

Corrective actions identified in Section V.B will be completed by March 31, 1996.