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

William R. Lagergren, Jr.
Site Vice President, Watts Bar Nuclear Plant

DEC 0 2 2003

10 CFR 50.73

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

Gentlemen:

In the Matter of) Docket No. 50-390
Tennessee Valley Authority)

WATTS BAR NUCLEAR PLANT (WBN) - UNIT 1 - FACILITY OPERATING LICENSE NPF-90 - LICENSEE EVENT REPORT (LER) 50-390/2003-005

This submittal provides Licensee Event Report 390/2003-005. This LER addresses an event that occurred on October 3, 2003, which resulted in both Trains of the Auxiliary Building Gas Treatment System (ABGTS) being concurrently inoperable for approximately two hours during core loading activities. This event is being reported under 10 CFR 50.73(a)(2)(v)(C) and (D).

There are no regulatory commitments in this submittal. If you have any questions, please contact P. L. Pace at (423) 365-1824.

Sincerely,

W. R. Lagergren

Enclosure
cc: See page 2

IE22

cc (Enclosure):

NRC Resident Inspector
Watts Bar Nuclear Plant
1260 Nuclear Plant Road
Spring City, Tennessee 37381

Ms. Margaret H. Chernoff, Project Manager
U.S. Nuclear Regulatory Commission
MS 08G9
One White Flint North
11555 Rockville Pike
Rockville, Maryland 20852-2738

U.S. Nuclear Regulatory Commission
Region II
Sam Nunn Atlanta Federal Center
61 Forsyth St., SW, Suite 23T85
Atlanta, Georgia 30303

Institute of Nuclear Power Operations
700 Galleria Parkway, NW
Atlanta, Georgia 30339-5957

NRC FORM 366 (7-2001) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 7-31-2004

Estimated burden per response to comply with this mandatory information collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

LICENSEE EVENT REPORT (LER)

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

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Watts Bar Nuclear Plant	05000 - 390	1 OF 7

4. TITLE ACCIDENT MITIGATION SYSTEM DEGRADED DUE TO BOTH TRAINS OF ABGTS INOPERABLE

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER 05000
10	03	2003	2003	- 005 -	00	12	02	2003	FACILITY NAME	DOCKET NUMBER 05000

9. OPERATING MODE	6
10. POWER LEVEL	000

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)

20.2201(b)	20.2203(a)(3)(ii)	50.73(a)(2)(ii)(B)	50.73(a)(2)(ix)(A)
20.2201(d)	20.2203(a)(4)	50.73(a)(2)(iii)	50.73(a)(2)(x)
20.2203(a)(1)	50.36(c)(1)(i)(A)	50.73(a)(2)(iv)(A)	73.71(a)(4)
20.2203(a)(2)(i)	50.36(c)(1)(ii)(A)	50.73(a)(2)(v)(A)	73.71(a)(5)
20.2203(a)(2)(ii)	50.36(c)(2)	50.73(a)(2)(v)(B)	OTHER Specify in Abstract below or in NRC Form 366A
20.2203(a)(2)(iii)	50.46(a)(3)(ii)	X 50.73(a)(2)(v)(C)	
20.2203(a)(2)(iv)	50.73(a)(2)(i)(A)	X 50.73(a)(2)(v)(D)	
20.2203(a)(2)(v)	50.73(a)(2)(i)(B)	50.73(a)(2)(vii)	
20.2203(a)(2)(vi)	50.73(a)(2)(i)(C)	50.73(a)(2)(viii)(A)	
20.2203(a)(3)(i)	50.73(a)(2)(ii)(A)	50.73(a)(2)(viii)(B)	

12. LICENSEE CONTACT FOR THIS LER

NAME	TELEPHONE NUMBER (Include Area Code)
Charlie Touchstone, Licensing Engineer	(423) 365-3820

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

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX

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

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

On October 3, 2003, Watts Bar Nuclear Plant Unit 1 was in Mode 6 during a refueling outage with core re-load in progress. At 1516 hrs (EDT), main control room personnel became aware that an activity involved with an upcoming test had inappropriately placed the B-Train Auxiliary Building Gas Treatment System (ABGTS) Exhaust Fan 480v breaker in the OPEN position. An operator was immediately dispatched and the breaker was closed at 1521 hrs, restoring the train to OPERABLE status. The opening of this breaker at about 1324 hrs caused the B ABGTS train to be INOPERABLE at a time when the A-train ABGTS was available to start but technically inoperable due to an unavailable emergency power supply (2A-A Emergency Diesel Generator). The ABGTS system is required for the mitigation of a postulated fuel handling accident. The immediate cause of the event was human error by a shift test director who did not realize the A-Train ABGTS was inoperable when he directed opening the subject breaker in support of equipment alignments for the upcoming test. Corrective actions include counseling of involved individuals on their awareness of plant conditions and need for adequate communications and adding a separate item to the Outage Schedule for preliminary alignments for 18 Month Blackout tests.

The safety significance of this event was low. In an actual FHA, performance of site emergency procedures would have detected and quickly restored ABGTS Train B. Further, with off site power available, ABGTS Train A would have immediately responded to an event. Dose consequences assuming loss of all ABGTS were determined to remain with regulatory limits.

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 7
Watts Bar Nuclear Plant, Unit 1	05000390	2003	--- 005	---- 00	

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

I. PLANT CONDITIONS

On October 3, 2003, Watts Bar Nuclear Plant Unit 1 was in Mode 6 during a refueling outage with core re-load in progress.

II. DESCRIPTION OF EVENT

A. Event

On October 3, 2003, Watts Bar Nuclear Plant Unit 1 was in Mode 6 during a refueling outage with core re-load in progress. At this time, Train B plant equipment, including Auxiliary Building Gas Treatment System (ABGTS) Train B [Energy Industry Identification (EIIS) Code BH], was being protected while various Train A equipment was inoperable due to maintenance or testing status, including Train A Emergency Diesel Generator, 2A-A [EIIS Code EK]. With the 2A-A diesel unavailable, the A Train ABGTS was technically inoperable and tracked accordingly in WBN Technical Specification (TS) 3.7.12, "ABGTS", although it was functionally capable of performing its safety function using preferred offsite power [EIIS Code EB], which was available. During movement of irradiated fuel, WBN TS 3.7.12 requires two trains of ABGTS to be OPERABLE in order to mitigate the consequences of a potential fuel handling accident (FHA). An inoperable ABGTS train must either be restored within seven days or the operable train placed in service. If these conditions are not met, TS 3.7.12 requires immediate suspension of fuel handling activities.

WBN Operations personnel were in the process of performing equipment alignments for an upcoming surveillance test for the the 1B-B Diesel Generator, 0-SI-82-4, "18 Month Loss of Offsite Power With Safety Injection." Preparations for these equipment alignments had begun on October 1 at approximately 0300 hrs. Because extensive prerequisite setups and alignments are required in preparation for the test, these activities are typically initiated in advance of the actual test performance, provided any specified precautions/restrictions are satisfied. Section 4.4.1 (Pre-test Evolutions) of 0-SI-82-4, directs equipment alignments to be performed in accordance with checklists contained in 0-SI-82-4, including a requirement to open the B-Train ABGTS exhaust fan breaker (2-BKR-30-157) [EIIS Code BKR] prior to beginning test performance to prevent its operation during the test. Section 1.3 (Frequency and Conditions) of the procedure addresses Tech Spec considerations for affected equipment based on existing plant Mode, including LCO 3.7.12. Further, Section 3.0.R states that the test instruction is not to be performed while either diesel generator 1A-A or 2A-A is inoperable. However, as a result of inattention and inadequate communications by a licensed test director, at approximately 1324 hours, an assistant unit operator (AUO) opened 2-BKR-30-157 which rendered B-Train ABGTS inoperable. As a result of this inappropriate action, both trains of ABGTS were inadvertently and unknowingly rendered inoperable for approximately 2 hours and hence the required action to terminate fuel movement activities was not initiated.

At 1516 hours, main control room (MCR) personnel became aware of the open breaker status upon notification by the performers (AUOs) that a portion of the checklist had been completed, including opening of the breaker. An Senior Reactor Operator (SRO) immediately realized the breaker condition as improper and directed the breaker to be re-closed. An operator was immediately dispatched and the breaker was closed at 1521 hours restoring ABGTS Train B to OPERABLE status.

Problem Evaluation Report (PER) 03-016948-000 was initiated to document this event in the TVA Corrective Action Program.

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Watts Bar Nuclear Plant, Unit 1	05000390	2003	--- 005	---- 00	3 OF 7

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

II. Description of Events (continued)

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

1) Emergency Diesel Generator 2A-A - Diesel generator inoperable but not required to be Operable in accordance with TS 3.8.2, since both B-Train Diesels were Operable.

2) ABGTS Exhaust Fan A-A - Inoperable due to EDG 2A-A unavailability but capable of performing intended function from normal power supplies, assuming no loss of offsite power.

3) ABGTS Exhast Fan B-B - Required to be Operable and protected for the current plant condition. It was rendered inoperable once its associated exhaust fan breaker was opened.

4) A-Train Unit 1 Elevation 737 Penetration Room Cooler [EIIS Code BI] which provides required cooling for A-Train ABGTS and penetration room equipment was unavailable due to maintenance on its essential raw cooling water supply. However, the redundant B-Train Unit 1 Elevation 737 Penetration Room Cooler was available and also provides cooling for Train A ABGTS.

C. Dates and Approximate Times of Major Occurrences

Date	Time	Event
9-07-03	1802	WBN plant shut down to begin refueling outage.
9-30-03	0415	Emergency diesel generator 2A-A inoperable due to cross training Train A essential raw cooling water (ERCW) with Train B. This action was performed in preparation for Train A ERCW outage.
9-30-03	1643	WBN began reloading core and entered Mode 6.
9-30-03	1643	Entered TS 3.7.12 Condition A for Train A ABGTS Inoperable due to 2A-A Diesel Inoperable.
10-01-03	0300	Preparations began for preliminary equipment alignments for 0-SI-82-4.
10-03-03	1324	AUO inappropriately opened breaker for Train-B ABGTS exhaust fan, 2-BKR-30-157.
10-03-03	1324	Both trains ABGTS technically inoperable (Not realized).
10-03-03	1516	MCR personnel became aware of mis-positioned breaker and entered LCO 3.7.12, Condition D for both trains inoperable.
10-03-03	1521	2-BKR-30-157 closed; Train B ABGTS restored to Operable status.

D. Other Systems or Secondary Functions Affected

There were no other systems affected.

E. Method of Discovery

MCR personnel became aware of the open breaker status upon notification by the performers (AUOs) that a portion of the checklist had been completed, including opening of the breaker. An SRO immediately realized the breaker condition as improper and directed the breaker to be re-closed.

F. Operator Actions

Operations personnel responded by immediately dispatching an operator to close the B Train ABGTS breaker, 2-BKR-30-157. Refer to Section III, Cause of the Event, for circumstances related to human performance.

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	4 OF 7
Watts Bar Nuclear Plant, Unit 1	05000390	2003	--- 005	---- 00	

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

II. Description of Events (continued)

G. Safety System Responses

Plant safety systems operated as designed. However, as described above, ABGTS Train A was technically inoperable at the time of the event but capable of performing its intended function, assuming no loss of offsite power. For the actual plant conditions, both trains of preferred offsite power circuits were available and capable of supplying ABGTS Train A power requirements.

III. CAUSE OF THE EVENT

A. Immediate Cause

The immediate cause of the event was inattention by a shift test director who was not aware the A-Train ABGTS was inoperable when directing personnel to perform equipment alignments for an upcoming test, which included opening the subject breaker for B-Train ABGTS. The test director did not meet management expectations for consulting the Technical Specifications tracking log to assess the impact of plant manipulations on other equipment that was out of service.

B. Root Cause

The root cause of this event was inattention and inadequate communication by a shift test director responsible for directing alignment activities associated with test prerequisites. The test director realized a "protected" component (B-Train ABGTS exhaust fan breaker) would be de-energized and requested notification from the performers following equipment alignments. However, the specifics of this evolution were not adequately discussed with the performers and other MCR personnel to ensure sufficient awareness and focus on the activity. As a result, the MCR did not become aware of the open breaker status until completion of the checklist, about two hours after the breaker was opened.

C. Contributing Factors

A contributing factor was inadequate work planning/scheduling for the test, 0-SI-82-4, in that the preliminary equipment alignments were not addressed separately in the Outage Schedule.

IV. ANALYSIS OF THE EVENT

The ABGTS consists of two independent and redundant trains which filter airborne radioactive particulates from the area of the spent fuel pool following an FHA and from the area of active Unit 1 Emergency Core Cooling Components and Unit 1 penetration rooms following a loss of coolant accident (LOCA). The ABGTS is a standby system, not used during normal plant operations. The ABGTS design basis is established by the consequences of the limiting FHA. The analysis of the FHA assumes that all fuel rods in an assembly are damaged. The design basis accident analysis of the FHA assumes that only one train of the ABGTS is functional due to a single failure that disables the other train. The accident analysis accounts for the reduction in airborne radioactive material provided by the one remaining train of this filtration system. The amount of fission products available for release from the Auxiliary Building Secondary Containment Enclosure is determined for an FHA and for a LOCA. Since the plant was in Mode 6, the LOCA mitigation function of the ABGTS was not required.

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Watts Bar Nuclear Plant, Unit 1	05000390	2003	--- 005	---- 00	5 OF 7

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

IV. ANALYSIS OF THE EVENT (continued)

For the subject event, an operator inappropriately opened breaker 2-BKR-30-157 for the protected B-Train ABGTS Exhaust Fan rendering its filtration train inoperable. As a result, both trains of ABGTS were unknowingly rendered inoperable for approximately 2 hours until the mis-positioned breaker was discovered and restored. In this condition, WBN TS require immediate suspension of the movement of irradiated fuel to eliminate the possibility for the occurrence of an FHA concurrent with an inoperable ABGTS system. Although the need to suspend fuel movement was not realized, it is very likely that at least one train of ABGTS would have been available to perform its required safety function in the event of a design basis FHA. For the FHA, site emergency procedures require the operator to promptly assure ABGTS is in operation. ABGTS status indication is provided in the MCR and breaker restoration can be quickly performed in the adjacent 480V board room of the Auxiliary Building. In addition, with off site power available, the A Train ABGTS train would have immediately responded to an event and begun to perform its filtration function while the otherwise operable B train was manually restored. Although Unit 1 737 Train A Penetration Room Cooling was unavailable, Train B Penetration Room cooling was available to ensure cooling for A Train ABGTS.

The following evaluation considered the consequences of an FHA in the Auxiliary Building with no ABGTS safety function. For the subject event, plant shut down occurred at 1802 hours on September 7, 2003. Consequently, the fuel had decayed approximately 619 hours when this event occurred.

Results:

The control room doses are as follows (rem):

Spent Fuel Pit/Auxiliary Building FHA, 20.6 seconds MCR isolation

	Standard Core ARCON96 X/Q
Gamma	2.804E-02
Beta	4.097E-01
Thyroid (ICRP-30)	21.50E+00

The offsite doses were determined to be (rem):

Spent Fuel Pit/Auxiliary Building FHA

	Standard Core	
	2-hr EAB	30-day LPZ
Gamma	3.107E-02	7.218E-03
Beta	1.316E-01	3.058E-02
Thyroid (ICRP-30)	24.21E+00	5.623+00

Based on this evaluation, the MCR operator doses resulting from a FHA with 619 hours decay time and no ABGTS are less than the 10 CFR 50, Appendix A, GDC 19 limits of 5 rem gamma, 30 rem beta, 30 rem thyroid. The 2 hour Site Boundary (SB)/Exclusion Area Boundary (EAB) and 30 day Low Population Zone (LPZ) doses from a FHA are less than 25 percent of the 10 CFR 100 limits of 25 rem gamma, 300 rem beta, and 300 rem thyroid (= 6.25 rem gamma, 75 rem beta, 75 rem thyroid).

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	6 OF 7
Watts Bar Nuclear Plant, Unit 1	05000390	2003	--- 005	---- 00	

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

V. ASSESSMENT OF SAFETY CONSEQUENCES

Based on the discussion in Section IV above, there was no safety significance to this event.

VI. CORRECTIVE ACTIONS

A. Immediate Corrective Actions

The immediate corrective action was to close Train B ABGTS breaker which restored the system to operable status and exit the LCO. In additional, stand downs with both night shift and day shift were conducted reemphasizing refueling outage technical specification requirements. The independent work of the individual was also restricted until management determined that standards and expectations were understood and were being implemented.

B. Corrective Actions to Prevent Recurrence: (TVA does not consider these items to constitute regulatory commitments. TVA's corrective action program tracks completion of these actions.)

1. The test director was counseled on maintaining attention to detail and adequate communication with MCR personnel during test activities.

2. The test director will be retrained on Management expectations for maintaining an awareness of plant conditions and protected equipment, including use of the TS Tracking log.

3. A separate item will be added to future refueling outage schedules to address the performance of prerequisites for all 18 Month Loss of Power (blackout) testing procedures.

4. Coached the responsible Unit SRO on the need for maintaining proper communication with test personnel during testing activities.

5. As an enhancement, the diesel generator Blackout testing procedures will be revised to add additional procedural controls to prevent removing both trains of ABGTS from service.

6. Add Blackout testing to the Operations "Just in Time" refueling outage training matrix.

VII. ADDITIONAL INFORMATION

A. Failed Components

There were no failed components that contributed to this event. Once the subject breaker was closed, ABGTS Train B was capable of performing its function. In addition, Train A ABGTS remained capable of performing its required function using preferred offsite power.

B. Previous LERs on Similar Events

A review of previous WBN LERs indicated there have been several events involving redundant safety systems being concurrently inoperable but none have resulted from inappropriate component manipulations in support of planned testing.

LICENSEE EVENT REPORT (LER)

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Watts Bar Nuclear Plant, Unit 1	05000390	2003	--- 005	---- 00	7 OF 7

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

VII. ADDITIONAL INFORMATION (continued)

C. Additional Information

None.

D. Safety System Functional Failure Consideration

This event is considered a safety system functional failure for ABGTS in accordance with Nuclear Energy Institute (NEI) 99-02, Revision 0, since the system was rendered incapable of automatically performing its safety function as designed.

E. Loss of Normal Heat Removal Consideration

This event did not result in a scram and did not involve a loss of heat removal.

VIII. COMMITMENTS

None.