

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

Richard T. Purcell  
Site Vice President, Watts Bar Nuclear Plant

JUN 25 1998

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

Gentlemen:

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

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1 FACILITY OPERATING LICENSE  
NPF-90 - LICENSEE EVENT REPORT (LER) 50-390/1998002 - MISSED  
SURVEILLANCE DUE TO INOPERABLE ALARM

The purpose of this letter is to provide LER 50-390/1998002. This LER involves a failure to perform a conditionally required surveillance due to an inoperable alarm. This condition is being reported in accordance with 10 CFR 50.73(a)(2)(i)(B). The enclosure provides this LER.

In you should have any questions, please contact P. L. Pace at (423) 365-1824.

Sincerely,

  
R. T. Purcell

*Jerr*

Enclosure  
cc: See page 2

9806300116 980626  
PDR ADOCK 05000390  
S PDR

U.S. Nuclear Regulatory Commission

Page 2

JUN 25 1998

cc (Enclosure):

INPO Records Center  
Institute of Nuclear Power Operations  
700 Galleria Parkway  
Atlanta, Georgia 30339-5957

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

Mr. Robert E. Martin, Senior Project Manager  
U.S. Nuclear Regulatory Commission  
One White Flint North  
11555 Rockville Pike  
Rockville, Maryland 20852

U.S. Nuclear Regulatory Commission  
Region II  
Atlanta Federal Center  
61 Forsyth St., Suite 23T85  
Atlanta, Georgia 30323

LICENSEE EVENT REPORT (LER)

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

FACILITY NAME (1) <b>Watts Bar Nuclear Plant - Unit 1</b>	DOCKET NUMBER (2) <b>05000390</b>	PAGE (3) <b>1 OF 5</b>
--	--------------------------------------	---------------------------

TITLE (4)  
**MISSED SURVEILLANCE DUE TO INOPERABLE AXIAL FLUX DIFFERENCE (AFD) ALARM**

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
05	27	1998	1998	002	00	06	26	1998		05000
										05000

OPERATING MODE (9) <b>1</b>	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)				
POWER LEVEL (10) <b>100</b>	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(2)(v)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(viii)	
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(x)	
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 73.71	
	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> OTHER	
	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	Specify in Abstract	
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vii)	or in NRC Form 366A	

LICENSEE CONTACT FOR THIS LER (12)

NAME <b>R. A. Stockton, Licensing Engineer</b>	TELEPHONE NUMBER (Include Area Code) <b>(423)-365-1818</b>
---	---

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

SUPPLEMENTAL REPORT EXPECTED (14)				EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE).	<input checked="" type="checkbox"/>	NO					

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

On May 27, 1998, WBN personnel determined while investigating the cause of the axial flux alarm malfunction which occurred on April 29, 1998, that this alarm had been inoperable for the time period of April 27, 1998 through April 29, 1998. This inoperability was created as a result of a maintenance activity performed on April 27, 1998. Since the operators were not aware that the maintenance activity caused the alarm to become inoperable, Surveillance Requirement (SR) 3.2.3.1 was not met which requires hourly verification that AFD is within limits if the alarm is inoperable. This condition is being reported under 10 CFR 50.73(a)(2)(i)(B). It was later determined that the AFD was well within the allowable band during the time period.

The root cause was determined to be a lack of specific guidance on the effects of removing power from the input/output interface panel. Corrective actions include restoring the alarm to operable status and revising a maintenance instruction to incorporate specific guidance.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
	05000	YEAR	SEQUENTIAL NUMBER	REVISION	2 OF 5
Watts Bar Nuclear Plant, Unit 1	05000390	1998	-- 002	-- 00	

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

I. PLANT CONDITIONS:

Watts Bar Nuclear Plant Unit 1 was in Mode 1 operating at approximately 100 percent reactor power when this condition was identified.

II. DESCRIPTION OF EVENT

A. Event

On May 27, 1998, WBN personnel, while investigating the cause of the axial flux difference alarm (Energy Industry Identification System (EIIIS) Code ALM) malfunction, determined that this alarm had been inoperable for the time period of April 27, 1998 through April 29, 1998. This inoperability was created as a result of a maintenance activity performed on April 27, 1998 to correct a magnetic tape drive (EIIIS Code CPU/DRIV) deficiency in the P2500 computer (EIIIS Code CPU). Since the operators were not aware that the maintenance activity caused the alarm to become inoperable, Surveillance Requirement (SR) 3.2.3.1 was not met which requires hourly verification that AFD is within limits if the alarm is inoperable. A regularly scheduled performance of Surveillance Instruction (SI) 1-SI-0-21, "Excure QTPR and Axial Flux Difference" on April 29, 1998, identified that the alarm was not functioning properly. The alarm was repaired and an investigation initiated to determine the cause.

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

The axial flux difference alarm was not operable.

C. Dates of Discovery and Reportable Findings

This condition was discovered on May 27, 1998, while investigating the cause of an alarm malfunction which had occurred on April 29, 1998, during a performance of Surveillance Instruction (SI) 1-SI-0-21, "Excure QTPR and Axial Flux Difference."

D. Other Systems or Secondary Functions Affected

No other systems or secondary functions were affected.

E. Method of Discovery

A printout of the P2500 constants was reviewed to determine when constant values became erroneous.

F. Operator Actions

When the AFD alarm failed to sound during a routine performance of surveillance instruction 1-SI-0-21, work order numbers 98-005114-000 and 98-002272-001 were implemented to restore the alarm function. Problem Evaluation Report WBPER980508 was initiated to determine the cause.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

FACILITY NAME (1)  Watts Bar Nuclear Plant, Unit 1	DOCKET 05000	LER NUMBER (6)			PAGE (3) 3 OF 5
	05000390	YEAR 1998	SEQUENTIAL NUMBER 002	REVISION 00	

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

II. DESCRIPTION OF EVENT (continued)

G. Automatic and Manual Safety System Responses

There were no automatic or manual safety system responses to this condition.

III. CAUSE OF EVENT

The cause of this event was determined to be a lack of specific guidance on the effects of removing power from the input/output interface panel (Z-panel). A maintenance activity, performed on April 27, 1998, under work order 98-01316-00 to correct a magnetic tape drive deficiency, required that the P2500 interface panel assembly power be removed. Power was removed from this interface panel assembly by lifting the 26 volt supply leads under load conditions. It was concluded through investigation that manually lifting the powered leads, under load, introduced erroneous power supply buss pulses. This condition caused the signal logic interface buss to store erroneous P2500 computer point constant data in the memory interface locations. Analysis of the Emergency Response Facility Data System (ERFDS) archive file history data reviewed that the P2500 constant, K9015, "Alarm buzzer enable," data quality went "bad" at approximately 1538 on April 27, 1998 which coincided with the removal of power from P2500 interface assembly. When the P2500 computer was rebooted on April 27, 1998, after the magnetic tape drive work was completed, function of the equipment appeared normal. The alarm condition remained undetected until the alarm failed to sound when the routine performance of 1-SI-0-21 was performed on April 29, 1998.

IV. ANALYSIS OF EVENT - ASSESSMENT OF SAFETY CONSEQUENCES

The AFD is monitored on an automatic basis using the unit process computer, which has an AFD monitor alarm. The computer determines the 1 minute average of each of the operable excore detector outputs and provides an alarm message immediately if the AFD for two or more operable excore channels is outside its specified limits.

Surveillance Instruction, 1-SI-0-21, verifies that the AFD, as indicated by the NIS excore channel, is within its specified limits and is consistent with the status of the AFD monitor alarm. With the AFD monitor alarm inoperable, the AFD is monitored every hour to detect operation outside its limit. With the AFD monitor alarm operable, the Surveillance Frequency of 7 days is adequate considering that the AFD is monitored by a computer and any deviation from requirements is alarmed, and the fact that the AFD is closely monitored by the operator via the board mounted meters.

The operator is required to generally control AFD within + or - 5% of the target value supplied for constant axial offset control strategy although the plant is licensed for relaxed axial offset control (RAOC). The 100% RTP steady state target was -1.5% and the operating RAOC limits were +6% to -15% or an acceptable band of +7.5% and -13.5% about the target value.

The AFD was well within the allowable band during this time period. Therefore, the safety significance of this condition (i.e., with the AFD monitor alarm inoperable) is considered very low.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION	
Watts Bar Nuclear Plant, Unit 1	05000				4 OF 5
	05000390	1998 --	002 --	00	

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

V. CORRECTIVE ACTIONS

A. Immediate Corrective Actions

The alarm function was restored under work orders 98-005114-000 and 98-002272-001. Problem Evaluation Report WBP980508 was initiated to investigate the cause of the alarm malfunction.

A review of a printout of the P2500 constants was performed to determine if other additional problems existed. Although some additional constants were affected by the April 27, 1998 maintenance activity, no similar missed surveillance requirements were identified.

B. Corrective Actions to Prevent Recurrence

Instrument Maintenance Instruction (IMI)-261.03, "P2500 Process Computer V/F Converter Calibration and A/D Subsystem Troubleshooting," will be revised to include specific guidance as to the effects of removing power from the input/output interface panel (Z-Panel).

VI. ADDITIONAL INFORMATION

A. Failed Components

1. Safety Train Inoperability

There were no safety train inoperability as a result of this condition.

2. Component/System Failure Information

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

There were no component or system failure due to this condition.

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

There were no component or system failure due to this condition.

c. Root Cause of Failure:

There were no component or system failure due to this condition.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

- FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
Watts Bar Nuclear Plant, Unit 1	05000	YEAR	SEQUENTIAL NUMBER	REVISION	5 OF 5
	05000390	1998	-- 002	-- 00	

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

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

There were no component or system failure due to this condition.

**e. Manufacturer and Model Number of Each Failed Component:**

There were no component or system failure due to this condition.

**B. Previous Similar Event**

WBN has reported no other deficiencies similar to this event.

**VII. COMMITMENTS**

The action committed to be implemented in response to this condition is provided in Section V, Corrective Actions. This action will be completed by July 31, 1998.