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Watts	Bar N	luclear	Plant - Ur	nit 1							. 0	5000390		1	OF 11		
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

The purpose of this LER is to report findings in accordance with 10 CFR 50.73 associated with Generic Letter (GL) 96-01, "Testing of Safety Related Logic Circuits" reviews. GL 96-01 requires each licensee to compare electrical schematic drawings and logic diagrams for the Reactor Protection System, Emergency Diesel Generator load shedding and sequencing, and actuation logic for the Engineered Safety Feature Actuation System (ESFAS) against plant surveillance test procedures to ensure that all portions of the logic circuitry including the parallel logic, interlocks, bypasses and inhibit circuits are adequately covered in the surveillance procedures to fulfill the Watts Bar Technical Specification requirements. The first surveillance deficiencies identified involved unverified parallel circuit paths and were discovered on April 28, 1997. Some additional findings have been discovered since April 28 and have been included in the report. The cause of the surveillance instruction deficiencies have been attributed to inadequate technical reviews. Corrective actions consist of completing the reviews, addressing verification of any unverified logic circuits, informing technical reviewers of the requirements of GL 96-01, and correcting any hardware deficiencies found.

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NRC FORM 366A (4-95)	<u></u>	U.S. NUCLEAR	REGULATO	DRY COMM	AISSION
LICENSEE EV	ENT REPORT (LE	IR)			
TEXT CO	ONTINUATION				
FACILITY NAME (1)	DOCKET	LER NUMBER	(6)	PAGE (3)	
	05000	YEAR SEQUENTIAL NUMBER	REVISION	2 OF	11
Watts Bar Nuclear Plant, Unit 1	05000390	97 011	01		

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

I. PLANT CONDITIONS:

Watts Bar Nuclear Plant Unit 1 has been operating in Mode 1 at approximately 100 percent rated thermal power (RPT) under the subject LER conditions.

II. DESCRIPTION OF EVENT

A. <u>Event</u>

The purpose of this LER is to report findings in accordance with 10 CFR 50.73 associated with Generic Letter (GL) 96-01, "Testing of Safety Related Logic Circuits" reviews. GL 96-01 requires each licensee to compare electrical schematic drawings and logic diagrams for the Reactor Protection System (Energy Industry Identification System (EIIS) code JC/JG), Emergency Diesel Generator (EIIS code EK) load shedding and sequencing, and actuation logic for the Engineered Safety Feature Actuation System (ESFAS) (EIIS code JE) against plant surveillance test procedures to ensure that all portions of the logic circuitry including the parallel logic, interlocks, bypasses and inhibit circuits are adequately covered in the surveillance procedures to fulfill the Technical Specification (TS) requirements. It was established to address industry problems with testing of safety related logic circuits. TVA's letter to NRC dated April 18, 1996, indicated that WBN GL 96-01 reviews would be completed by startup after the first refueling outage currently scheduled to begin in September 1997. As a result of ongoing reviews, the first reportable GL 96-01 findings were identified on April 28, 1997. The findings have been listed in Section II.C by the date of discovery. If additional GL 96-01 reportable findings are discovered, TVA will supplement the subject LER.

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

None

C. <u>Dates of Discovery and Reportable Findings</u>

Each finding is listed in a table by the date of discovery. Any additional findings will be added to the table list in supplemental reports until the GL 96-01 review is complete.

NRC FORM 366A (4-95)		U.S. NUCLEAR REGULATO	DRY COMMISSION		
	E EVENT REPORT (LE	IR)			
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FACILITY NAME (1)	DOCKET	LER NUMBER (6)	PAGE (3)		
	05000	YEAR SEQUENTIAL REVISION NUMBER	3 OF 11		
Watts Bar Nuclear Plant, Unit 1	05000390	97 011 01			

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

II. DESCRIPTION OF EVENT (continued)

C. Dates of Discovery and Reportable Finding

ltem	Date of	Incomplete	
	Discovery	Procedures	Test Deficiency
1	4/28/97	1-SI-99-5	The surveillance instruction did not verify that the manual handswitches for Phase A Containment Isolation (EIIS code JM), Containment Vent Isolation (EIIS code JM), and Containment Spray (EIIS code BE) functioned properly. The trip actuating device operational test (TADOT) to satisfy SR 3.3.2.8 and SR 3.3.6.6 was incomplete. Specifically, the procedure did not include:
			(1) Verification that 1-HS-30-63A successfully initiates Containment Isolation Phase A and Containment Vent Isolation to Train A and Train B of the Solid State Protection System (SSPS) (EIIS code JC/JG).
			(2) Verification that 1-HS-30-63B successfully initiates Containment Isolation Phase A and Containment Vent Isolation to Train A and Train B of SSPS.
			(For items 1 and 2 above, simultaneous action of handswitches as performed in the surveillance instruction did not verify operability of each switch because Containment Isolation Phase A and Containment Vent Isolation manual signals occur through parallel logic circuit paths.)
			(3) Verification that 1-HS-30-64A in combination with 1-HS-30-64B successfully initiates a Containment Spray signal to Train A and Train B of SSPS.
			(4) Verification that 1-HS-30-68A in combination with 1-HS-30-68B successfully initiates a Containment Spray signal to Train A and Train B of SSPS.
			(For items 3 and 4 above, Containment Spray initiation as performed in the surveillance instruction did not verify operability of each switch because Containment Spray and Containment Isolation Phase B signals occur through parallel circuit paths.
			(continued)

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		EVENT (continued)								
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[Item 1 (continu	ued)		· · · · · · · · · · · · · · · · · · ·]	
	Applicable LCC						·			
	Applicable LCC LCO 3.3.2 Th	<u>os</u> ne ESFAS instrumen	tation for eac	h function in T	echnical Si	necificati	on (TS)			
	Ta	able 3.3.2-1, "Engin perable.	eered Safety	Feature Actuati	on Instrum	nentation	," shall b	e		
	1CO 3.3.6 TH	ne containment vent	isolation inst	rumentation for	each fun	tion in T	S Tabla			
		3.6-1, "Containmen								
	into LCO 3.0.3	blem was encounter was required briefly	because the m	anual handswite	ch circuits v	were not	restored to	0		
	service within 2	4 hours after discove	ery (SR 3.0.3)	of the missed si	urveillance	. A 20 m	inute dela	V	•	
	HS-30-68A was	hours was encounter replaced. All four li	ed during resto sted handswite	pration of the sw ch functions wer	itch operat	oility. Ha	ndswitch 1	1-		
	operable status									
	·					- H.J				
						- <u>1, -</u>	- 			
Iten		Incomplete	Tast Dofi]	
Iten	n Date of Discovery		Test Defi	ciency		• <u>•</u> ••••••••••••••••••••••••••••••••••				
Iten 2		Incomplete Procedures 1-SI-92-41	There was	s no verification				at		
	Discovery	Incomplete Procedures 1-SI-92-41 1-SI-92-42	There was indicated	s no verification the Power Rang	je Protectio	on (P-10)	interlock			
	Discovery	Incomplete Procedures 1-SI-92-41	There was indicated (EIIS cod	s no verification the Power Rang e IEL) was in the	e Protection required :	on (P-10) state for (interlock existing ur	nit		
	Discovery	Incomplete Procedures 1-SI-92-41 1-SI-92-42 1-SI-92-43 1-SI-92-44 1-SI-92-141	There was indicated (EIIS cod conditions	s no verification the Power Rang	e Protection required standard standard standard standard standard standard standard standard standard standard standard standard stand standard standard stand standard standard stand standard standard stand standard standard stand standard standard stan	on (P-10) state for (interlock existing ur	nit		
	Discovery	Incomplete Procedures 1-SI-92-41 1-SI-92-42 1-SI-92-43 1-SI-92-44 1-SI-92-141 1-SI-92-142	There was indicated (EIIS cod conditions	s no verification the Power Rang e IEL) was in the s. Thus, the cha	e Protection required standard standard standard standard standard standard standard standard standard standard standard standard stand standard standard stand standard standard stand standard standard stand standard standard stand standard standard stan	on (P-10) state for (interlock existing ur	nit		
	Discovery	Incomplete Procedures 1-SI-92-41 1-SI-92-42 1-SI-92-43 1-SI-92-44 1-SI-92-141 1-SI-92-142 1-SI-92-143	There was indicated (EIIS cod conditions	s no verification the Power Rang e IEL) was in the s. Thus, the cha	e Protection required standard standard standard standard standard standard standard standard standard standard standard standard stand standard standard stand standard standard stand standard standard stand standard standard stand standard standard stan	on (P-10) state for (interlock existing ur	nit		
	Discovery	Incomplete Procedures 1-SI-92-41 1-SI-92-42 1-SI-92-43 1-SI-92-44 1-SI-92-141 1-SI-92-142	There was indicated (EIIS cod conditions	s no verification the Power Rang e IEL) was in the s. Thus, the cha	e Protection required standard standard standard standard standard standard standard standard standard standard standard standard stand standard standard stand standard standard stand standard standard stand standard standard stand standard standard stan	on (P-10) state for (interlock existing ur	nit		
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2	Discovery 5/1/97 Applicable LCO	Incomplete Procedures 1-SI-92-41 1-SI-92-42 1-SI-92-43 1-SI-92-44 1-SI-92-141 1-SI-92-142 1-SI-92-143 1-SI-92-144	There was indicated (EIIS cod conditions satisfy SF	s no verification the Power Rang e IEL) was in the s. Thus, the cha R 3.3.1.7 was inc	ge Protection e required st annel operation complete.	on (P-10) state for o ability tes	interlock existing ur t (COT) to	nit)		
2	Discovery 5/1/97 Applicable LCO LCO 3.3.1 RTS	Incomplete Procedures 1-SI-92-41 1-SI-92-42 1-SI-92-43 1-SI-92-44 1-SI-92-141 1-SI-92-142 1-SI-92-143 1-SI-92-144	There was indicated (EIIS cod conditions satisfy SF	s no verification the Power Rang e IEL) was in the s. Thus, the cha R 3.3.1.7 was inc	ge Protection e required st annel operation complete.	on (P-10) state for o ability tes	interlock existing ur t (COT) to	nit)		
2	Discovery 5/1/97 Applicable LCO LCO 3.3.1 RTS Inst	Incomplete Procedures 1-SI-92-41 1-SI-92-42 1-SI-92-43 1-SI-92-44 1-SI-92-141 1-SI-92-142 1-SI-92-143 1-SI-92-144 S instrumentation for trumentation, " shall	There was indicated (EIIS cod conditions satisfy SF or each function be operable.	s no verification the Power Rang e IEL) was in the s. Thus, the cha R 3.3.1.7 was inc on in TS Table :	ge Protection e required s annel opera complete. 3.3.1-1, "I	on (P-10) state for e ability tes	interlock existing ur t (COT) to	nit)		•
2	Discovery 5/1/97 Applicable LCO LCO 3.3.1 RTS Inst Plant Engineerin	Incomplete Procedures 1-SI-92-41 1-SI-92-42 1-SI-92-43 1-SI-92-44 1-SI-92-141 1-SI-92-142 1-SI-92-143 1-SI-92-143 1-SI-92-144	There was indicated (EIIS cod conditions satisfy SF or each function be operable. DS) (EIIS code	s no verification the Power Rang e IEL) was in the s. Thus, the cha R 3.3.1.7 was inc on in TS Table i e ID) archive da	ge Protection e required s annel opera complete. 3.3.1-1, "F	on (P-10) state for o ability tes Reactor ⊺ d that the	interlock existing ur t (COT) to Frip Syste	nit)		•
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2	Discovery 5/1/97 Applicable LCO LCO 3.3.1 RTS Inst Plant Engineerin interlock (EIIS c	Incomplete Procedures 1-SI-92-41 1-SI-92-42 1-SI-92-43 1-SI-92-44 1-SI-92-141 1-SI-92-142 1-SI-92-143 1-SI-92-143 1-SI-92-144	There was indicated (EIIS cod conditions satisfy SF or each function be operable. DS) (EIIS code required state	s no verification the Power Rang e IEL) was in the s. Thus, the cha R 3.3.1.7 was inc on in TS Table i e ID) archive da	ge Protection e required s annel opera complete. 3.3.1-1, "F	on (P-10) state for o ability tes Reactor ⊺ d that the	interlock existing ur t (COT) to Frip Syste	nit)		
2	Discovery 5/1/97 Applicable LCO LCO 3.3.1 RTS Inst Plant Engineerin interlock (EIIS c	Incomplete Procedures 1-SI-92-41 1-SI-92-42 1-SI-92-43 1-SI-92-44 1-SI-92-141 1-SI-92-142 1-SI-92-143 1-SI-92-143 1-SI-92-144	There was indicated (EIIS cod conditions satisfy SF or each function be operable. DS) (EIIS code required state	s no verification the Power Rang e IEL) was in the s. Thus, the cha R 3.3.1.7 was inc on in TS Table i e ID) archive da	ge Protection e required s annel opera complete. 3.3.1-1, "F	on (P-10) state for o ability tes Reactor ⊺ d that the	interlock existing ur t (COT) to Frip Syste	nit)		
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2	Discovery 5/1/97 Applicable LCO LCO 3.3.1 RTS Inst Plant Engineerin interlock (EIIS c	Incomplete Procedures 1-SI-92-41 1-SI-92-42 1-SI-92-43 1-SI-92-44 1-SI-92-141 1-SI-92-142 1-SI-92-143 1-SI-92-143 1-SI-92-144	There was indicated (EIIS cod conditions satisfy SF or each function be operable. DS) (EIIS code required state	s no verification the Power Rang e IEL) was in the s. Thus, the cha R 3.3.1.7 was inc on in TS Table i e ID) archive da	ge Protection e required s annel opera complete. 3.3.1-1, "F	on (P-10) state for o ability tes Reactor ⊺ d that the	interlock existing ur t (COT) to Frip Syste	nit)		
2	Discovery 5/1/97 Applicable LCO LCO 3.3.1 RTS Inst Plant Engineerin interlock (EIIS c	Incomplete Procedures 1-SI-92-41 1-SI-92-42 1-SI-92-43 1-SI-92-44 1-SI-92-141 1-SI-92-142 1-SI-92-143 1-SI-92-143 1-SI-92-144	There was indicated (EIIS cod conditions satisfy SF or each function be operable. DS) (EIIS code required state	s no verification the Power Rang e IEL) was in the s. Thus, the cha R 3.3.1.7 was inc on in TS Table i e ID) archive da	ge Protection e required s annel opera complete. 3.3.1-1, "F	on (P-10) state for o ability tes Reactor ⊺ d that the	interlock existing ur t (COT) to Frip Syste	nit)		

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NRC FO (4-95)	RM 3	66A					U.S. NUCLEAR	REGULATO	DRY	соммі	SSION		
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Watt	s Ba	r Nuclear Plant,	Unit 1		05000390	97	011	01					
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11.	DES	CRIPTION OF E	EVENT (continued)	З.									
	Iten	n Date of	Incomplete	· · · ·					·				
		Discovery	Procedures	Test Defi	ciency								
	3 5/1/97 1-SI-92-131 1-SI-92-132 There was no verification in surveillance instructions to indicate the Intermediate Range Neutron Flux (P-6) interlock (EIIS code IEL) was in the required state for												

existing unit conditions during performance of the COT. Thus, the COT to satisfy SR 3.3.1.8 was incomplete.

Item Date of Discovery	Incomplete Procedures	Test Deficiency
4 5/1/97	1-SI-92-31 1-SI-92-32 1-SI-92-131 1-SI-92-132	There was insufficient testing in surveillance instructions to completely demonstrate Intermediate Range Neutron Flux, and Source Range Neutron Flux in the COT and channel calibration respectively to satisfy SR 3.3.1.8 and 3.3.1.11. Surveillance instructions did not completely verify Source Range Channel I high flux reactor trip, Source Range Channel I high flux reactor trip, Intermediate Range Channel II high flux reactor trip, Intermediate Range Channel II P-6 interlock, and Intermediate Range Channel II P-6 interlock. Thus, it was not conclusively demonstrated that Train B of the SSPS input relays (EIIS code RLY) for Intermediate Range Neutron Flux, and Source Range Neutron Flux were verified as required by SR 3.3.1.8 and 3.3.1.11.

LCO 3.3.1 RTS (EIIS code JC/JG) instrumentation for each function in TS Table 3.3.1-1,

PEDS (EIIS code ID) computer point archive data indicated the P-6 interlock (EIIS code IEL) was in the required state for existing unit conditions at the time of the previous COT for SR 3.3.1.8.

Applicable LCO (Applicable to items 3, 4, and 5 respectively)

"Reactor Trip System Instrumentation," shall be operable.

PEDS (EIIS code ID) computer point archive data from the previous COT performance indicated the correct state change for Source Range, Intermediate Range, and P-6 outputs. Emergency Response Facility Data System (ERFDS) (EIIS code ID) data from April 24, 1997, during the performance of 1-SI-92-131 demonstrated that the SSPS Train B input relay operated.

NRC FORM 366A (4-95)

NRC FORM 366A (4-95)

U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET	LER NUMBER (6) PA					AGE (3)			
	05000	YEAR	SEQUENTIAL NUMBER	REVISION	6	OF	11			
Watts Bar Nuclear Plant, Unit 1	05000390	97	011	01						

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

II. DESCRIPTION OF EVENT (continued)

Item	Date of Discovery	Incomplete Procedures	Test Deficiency
5	5/1/97	1-SI-47-28 1-SI-47-30 1-SI-47-32 1-SI-47-34 1-SI-47-73 1-SI-47-74 1-SI-47-75	There was insufficient testing in the Channel Calibration / Trip Actuating Device Operational Test surveillance instructions for Turbine Trip Low Fluid Oil Pressure (EIIS code IT/TA), and Turbine Trip Turbine Stop Valve Closure (EIIS code IT/TA) to completely demonstrate verification to satisfy SR 3.3.1.10 and 3.3.1.14. The test methodology used in these instructions did not conclusively demonstrate verification of the subject inputs to Train B SSPS.

Archived computer data from PEDS (EIIS code ID) indicates that during the last performance of the subject instructions the plant process computer received the proper signals, thus indicating that Train B SSPS received the proper signals.

Item Date of Discovery	Incomplete Procedures	Test Deficiency
6 5-9-97	1-SI-99-300-A 1-SI-99-300-B	Test DeficiencyThe Volume Control Tank (VCT) (EIIS code CB/TK) to Refueling Water Storage Tank (RWST) (EIIS code CA/TK) swapover of the Centrifugal Charging Pump (CCP) (EIIS code CB/P) suction was not conclusively determined to occur via the safety related interlock.There was insufficient testing in surveillance instructions to verify that 1-LCV-62-135-A (EIIS code LCV) provided the close interlock signal to 1-LCV-62-132-A.There was insufficient testing in surveillance instructions to verify that 1-LCV-62-136-B provided the close interlock signal to 1-LCV-62-133-B.Thus, it was not conclusively demonstrated that the VCT to RWST swapover of the CCP suction was completely

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11.	DESCRIPTION O	F EVENT (continued)							
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	Item 6 (conti	nued)							
	Applicable LC		for each fire						
		ESFAS (EIIS code JE)	for each fund	CTION IN IS TABLE	e 3.3.2-	shall be	operable.		
	1-SI-99-603-A	response time test of	slave relay K	603A was review	ved and i	t was detei	mined that	t	
	1-LCV-62-135	5-A provided the closed 7 inadvertent safety inje-	d interlock for	1-LCV-62-132-A	. PEDS	data for th	е		
	1-LCV-62-136	B-B initiated the closing	of 1-LCV-62-	·133-B. Since ad	s determ cceptable	ineo that document	ation/data		
	has been extr	acted from 1-SI-99-603	3-A and also f	rom the March 6	5, 1997 in	advertent '	Train B		
	safety injectio	n, the VCT to RWST s	wapover is co	onsidered to be s	atisfacto	rily tested.			
	L]	
	Item Date of Discovery	Incomplete Procedures	Tort Dof	olonou					
	Discovery	Flocedules	Test Defi	ciency					
	7 6/26/97	1-SI-211-3-A		fficiencies have					
	1 1	1-SI-211-3-B 2-SI-211-3-A	voltage a	nd loss of voltag fication in situati	je relay (l	EllS code l	RLY-27)		
			logic ven	neation in Situati	Uns when	e uie 0.9 r		/n	
		2-SI-211-3-B	board (El	IS code EB) is fe	ea trom ii	s alternate	teeder		
		0-SI-82-3	board (El breaker (l	IS code EB) is fe EIIS code BKR).	The len	gth of time	that the		
		0-SI-82-3 0-SI-82-4	board (EI breaker (I alternate	EIIS code BKR). feeder breaker o	The len ould hav	gth of time e been use	that the		
		0-SI-82-3 0-SI-82-4 0-SI-82-5	board (El breaker (l alternate plant is in	EIIS code BKR). feeder breaker c ideterminate. Th	The len could hav nerefore,	gth of time e been use LCO 3.8.9	that the ed in the , Action A.	1 m	
		0-SI-82-3 0-SI-82-4	board (El breaker (l alternate plant is in (to restore	EIIS code BKR). feeder breaker o	The len could hav nerefore, al power	gth of time te been use LCO 3.8.9 distribution	that the ed in the , Action A. n subsyster	1 m	
		0-SI-82-3 0-SI-82-4 0-SI-82-5	board (El breaker (alternate plant is in (to restore to operab electrical	EIIS code BKR). feeder breaker of ideterminate. The the AC electric ile status within 8 power distribution	The len could hav nerefore, al power 3 hours w on subsys	gth of time te been use LCO 3.8.9 distribution then one of	that the ed in the , Action A. n subsyster r more AC	1 m	
		0-SI-82-3 0-SI-82-4 0-SI-82-5	board (El breaker (alternate plant is in (to restore to operab electrical	EIIS code BKR). feeder breaker o ideterminate. The the AC electric ile status within 8	The len could hav nerefore, al power 3 hours w on subsys	gth of time te been use LCO 3.8.9 distribution then one of	that the ed in the , Action A. n subsyster r more AC	1 m	
		0-SI-82-3 0-SI-82-4 0-SI-82-5	board (El breaker (alternate plant is in (to restore to operab electrical	EIIS code BKR). feeder breaker of ideterminate. The the AC electric ile status within 8 power distribution	The len could hav nerefore, al power 3 hours w on subsys	gth of time te been use LCO 3.8.9 distribution then one of	that the ed in the , Action A. n subsyster r more AC	n	
		0-SI-82-3 0-SI-82-4 0-SI-82-5 0-SI-82-6	board (El breaker (alternate plant is in (to restore to operab electrical	EIIS code BKR). feeder breaker of ideterminate. The the AC electric ile status within 8 power distribution	The len could hav nerefore, al power 3 hours w on subsys	gth of time te been use LCO 3.8.9 distribution then one of	that the ed in the , Action A. n subsyster r more AC	m	
	Applicable LC	0-SI-82-3 0-SI-82-4 0-SI-82-5 0-SI-82-6	board (El breaker (l alternate plant is in (to restore to operab electrical has poter	EIIS code BKR). feeder breaker of ideterminate. The the AC electric ile status within 8 power distribution tially been exce	The len could hav nerefore, cal power b hours w on subsys eded.	gth of time e been use LCO 3.8.9 distribution then one of stems is inc	that the ed in the , Action A. n subsyster more AC operable)	m	
	LCO 3.8.9 - T	0-SI-82-3 0-SI-82-4 0-SI-82-5 0-SI-82-6 0-SI-82-6	board (El breaker (alternate plant is in (to restore to operab electrical has poter	EIIS code BKR). feeder breaker of determinate. The the AC electric ble status within & power distribution ntially been exce	The len could hav nerefore, cal power b hours w on subsys eded.	gth of time e been use LCO 3.8.9 distribution then one of stems is inc	that the ed in the , Action A. n subsyster more AC operable)	m	
	LCO 3.8.9 - T bus electrical	0-SI-82-3 0-SI-82-4 0-SI-82-5 0-SI-82-6 0-SI-82-6	board (El breaker (alternate plant is in (to restore to operab electrical has poter	EIIS code BKR). feeder breaker of ideterminate. The the AC electric ble status within 8 power distribution ntially been excernation wels of vital DC, all be operable.	The len could hav nerefore, al power hours w on subsys eded. and four	gth of time e been use LCO 3.8.9 distribution hen one of stems is inc	e that the ed in the , Action A. n subsystem r more AC operable) of AC vita	m	
	LCO 3.8.9 - T bus electrical When a 6.9 KV	0-SI-82-3 0-SI-82-4 0-SI-82-5 0-SI-82-6 0-SI-82-6	board (El breaker (alternate plant is in (to restore to operab electrical has poter C, four chann bsystems sha d from its nor	EIIS code BKR). feeder breaker of ideterminate. The the AC electric ble status within 8 power distribution ntially been excer- els of vital DC, all be operable.	The len could hav nerefore, al power hours w on subsys eded. and four	gth of time e been use LCO 3.8.9 distribution then one of stems is inc channels	e that the ed in the , Action A. n subsystem r more AC operable) of AC vita	m .1	
	LCO 3.8.9 - T bus electrical When a 6.9 KV degraded volta	0-SI-82-3 0-SI-82-4 0-SI-82-5 0-SI-82-6 0-SI-82-6	board (El breaker (alternate plant is in (to restore to operab electrical has poter C, four chann bsystems sha d from its nor	EIIS code BKR). feeder breaker of ideterminate. The the AC electric ide status within 8 power distribution ntially been excernation wels of vital DC, all be operable. mal feeder break	The len could hav nerefore, al power hours w on subsys eded. and four	gth of time e been use LCO 3.8.9 distribution then one of stems is inc channels	e that the ed in the , Action A. n subsystem r more AC operable) of AC vita	m .1	
	LCO 3.8.9 - T bus electrical When a 6.9 K degraded volta and 0-SI-82-3,	0-SI-82-3 0-SI-82-4 0-SI-82-5 0-SI-82-6	board (El breaker (alternate plant is in (to restore to operab electrical has poter C, four chann bsystems sha d from its nor en satisfactoril and 0-SI-82-6	EIIS code BKR). feeder breaker of ideterminate. The the AC electric is status within & power distribution tially been excernation wels of vital DC, all be operable. mal feeder break by tested by 1-SI-	The len could hav nerefore, al power b hours w on subsys eded. and four ker, the lo -211-3-A,	gth of time e been use LCO 3.8.9 distribution then one of stems is inc channels css of volta -B, 2-SI-2	e that the ed in the , Action A. n subsyster r more AC operable) of AC vita age and 11-3-A, -B	m II	
	LCO 3.8.9 - T bus electrical When a 6.9 K degraded volta and 0-SI-82-3, A night order/o	0-SI-82-3 0-SI-82-4 0-SI-82-5 0-SI-82-6 Train A and Train B AC power distribution sul / shutdown board is fee age functions have bee 0-SI-82-4, 0-SI-82-5, a	board (El breaker (l alternate plant is in (to restore to operab electrical has poter C, four chann bsystems sha d from its nor en satisfactoril and 0-SI-82-6 issued to ente	EIIS code BKR). feeder breaker of ideterminate. The e the AC electric ile status within 8 power distribution itially been excer- mal feeder break by tested by 1-SI- er LCO 3.8.9. Co	The len could hav nerefore, al power b hours w on subsys eded. and four ker, the k -211-3-A, ondition A	gth of time e been use LCO 3.8.9 distribution then one or stems is inc channels oss of volta B, 2-SI-2	e that the ed in the , Action A. n subsyster r more AC operable) of AC vita age and 11-3-A, -B.	m II	
	LCO 3.8.9 - T bus electrical When a 6.9 KV degraded volta and 0-SI-82-3, A night order/c board is fed fro	0-SI-82-3 0-SI-82-4 0-SI-82-5 0-SI-82-6	board (El breaker (alternate plant is in (to restore to operab electrical has poter c, four chann bsystems sha d from its non en satisfactoril and 0-SI-82-6 issued to ente breaker. This	EIIS code BKR). feeder breaker of ideterminate. The e the AC electric ile status within 8 power distribution itially been excer- mal feeder break by tested by 1-SI- er LCO 3.8.9. Co	The len could hav nerefore, al power b hours w on subsys eded. and four ker, the k -211-3-A, ondition A	gth of time e been use LCO 3.8.9 distribution then one or stems is inc channels oss of volta B, 2-SI-2	e that the ed in the , Action A. n subsyster r more AC operable) of AC vita age and 11-3-A, -B.	m II	

NRC FORM 366A (4-95)

NRC FORM 3	366A			U.S. NUCLEAP	REGULAT	ORY (соммі	SSION
(4-95)	LICENSEE EVENI	REPORT (LE	ER)					
	TEXT CONT							
	FACILITY NAME (1)	DOCKET		LER NUMBER			PAGE	3)
		05000	YEAR	SEQUENTIAL NUMBER	REVISION	8	OF	11
Watts Ba	ar Nuclear Plant, Unit 1	05000390	97	011 -	- 01			
EXT (If more	e space is required, use additional copies of NRC Form 366A)	/ (17)		· ·		,		
II. DESCI	RIPTION OF EVENT (continued)							
D.	Other Systems or Secondary Functions Affected							
	No other systems or secondary functions were af	fected.						
Ε.	Method of Discovery							
	GL 96-01 reviews.							
F.	Operator Actions							
	Entry into applicable TS actions upon notification	as applicable.						
G.	Automatic and manual safety system responses							
	No automatic or manual safety system responses	have been asso	ociated	with the sub	ject LER.			
III. CA	USE OF EVENT							
The GL	e cause of this event has been attributed to inade 96-01 issues.	quate technical	review	vs similar in	nature to	the		
IV. AN	ALYSIS OF EVENT - ASSESSMENT OF SAFETY	CONSEQUENC	CES					
	There was no safety significance for the circuit tested or verified and documented as being ope	s identified in th arable by alterna	ne subj ate mea	ect LER that ans.	t were suc	cces	sfully	
	<u>1-HS-30-68A (EIIS code HS)</u> There was no decrease in nuclear safety associ 1-HS-30-68A. The continuity problem encoun involving 1-HS-30-68A in combination with 1-H Containment Spray signal to Train A and Train initiation is not credited in any accident events Therefore, the consequence of failure of 1-HS-3 safety.	tered during tes IS-30-68B requi B of SSPS was analyzed in the	sting in ired to not fui Safety	dicated that successfully nctional. Ho Analysis Re	the circu initiate a wever, m port (SAI	a nanu R).		
	Redundant manual initiation switches are also p (1-HS-30-64B). In addition, capability for manu system level via control room operation of the c containment spray pumps.	ual initiation of c	contain	ment spray	is provide	ed at	the	

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(4-95)	LICENSEE EVENT	=	IR)				
	TEXT CONT		1				
	FACILITY NAME (1)	DOCKET	LER NUMBER (6) YEAR SEQUENTIAL REVISION	PAGE (3)			
		05000	NUMBER	9 OF 11			
	ar Nuclear Plant, Unit 1	05000390	97 011 01				
EXT (If more	e space is required, use additional copies of NRC Form 366A)	/ (17)					
IV. AN	ALYSIS OF EVENT - ASSESSMENT OF SAFETY	CONSEQUEN	CES (continued)				
	Item 7This issue is of limited safety significance becafeeder breaker circuits are identical to the normsuspect that they would not function properly.the amount of time that one offsite circuit canon the alternate fed.The surveillance test insufficiencies in Item 7 woutage. If circuit problems are noted, TVA willto address the safety significance of each finding	hal feeder break Also, LCO 3.8 be inoperable, 1 vill be tested be I provide an ado	er circuits. Thus, there is no 3.1, Condition A, places limit thereby reducing the time of fore the end of the first refue litional supplement to the su	o reason to ations on operation eling bject LER			
V. CO A.	refueling outage. RRECTIVE ACTIONS Immediate Corrective Actions			· · ·			
	<u>Item 1:</u> A test procedure was written and the logic circ 1-HS-30-68A contacts were found unacceptabl	uits listed unde le. Work Order	r item 1 were tested. Hands 97007350-01 replaced the ha	switch ndswitch.			
В.	Corrective Actions to Prevent Recurrence						
,	In accordance with the schedule provided in TVA's letter to NRC dated April 18, 1996, technical reviews are being performed to compare electrical schematic drawings and logic diagrams for the Reactor Protections System (EIIS code JC/JG), Emergency Diesel Generator (EIIS code EK) load shedding and sequencing, and actuation logic for Engineered Safety Feature Actuation Systems (EIIS code JE) against plant surveillance test procedures to ensure that all portions of the logic circuitry including the parallel logic, interlocks, bypasses, and inhibit circuits are adequately covered in the surveillance procedures to fulfill the TS requirements. The review includes relay contacts, control switches, and other relevant electrical components within these systems, utilized in the logic circuits performing a safety function. Upon discovery of questionable items, the conditions have been determined to be valid or invalid.						
	Historical data including PEDS (EIIS code ID), E reviewed to determine if questionable logic circ been generated to document acceptance of alte	uits can be veri ernate data in lie	fied by alternate means. Rec ou of test verification docume	cords have entation.			
	In the absence of acceptable verification documentation, the unverified circuit logic paths have been verified via testing.						
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(4-95)	M 366	A	· · ·		U.S. NUCLEAR REGULAT	ORY COMMISSION
(4-95)		•		EE EVENT REPORT (L TEXT CONTINUATION	JER)	
			FACILITY NAME (1)	DOCKET	LER NUMBER (6)	PAGE (3)
				05000	YEAR SEQUENTIAL REVISION NUMBER	10 OF 11
		and the second se	ear Plant, Unit 1	05000390	97 011 Ó1	
v. cc	DRRE <u>lte</u> Th ou to ref Inc ou Th res Th	CTI m 7 le su tage add fuelin tage e ap tart e fir ONA <u>lled (</u> <u>Lter</u> An	A line of the first refueling outage is currently and the first refueling outage. A line outage is currently is currently and the first refueling outage. A line outage is currently and the first refueling outage is currently and the first refueling outage. A line outage is currently and the first refueling outage is currently	h Item 7 will be tested bef , TVA will provide an add each finding prior to 30 d prior to their next use or will be informed of the re- scheduled for September scheduled for September handswitch 1-HS-30-68A in Spray signal to Train A and	litional supplement to the sub lays after restart following the r prior to restart of the first re equirements of GL 96-01 prior 1997. 1997.	pject LER e first efueling r to BB to itiation
	of these two switches to initiate a Containment Spray signal is not credited in any accident event analyzed in the Safety Analysis Report (SAR).					
	2.	<u>C01</u>	mponent/System Failure Informa	<u>tion</u>		
		а.	Method of Discovery of Each Co	omponent or System Failu	re:	
			ltem 1: Work Order 97007350-01 found	dirty and intermittent cont	tacts on 1-HS-30-68A (EIIS co	de HS).
		b. Failure Mode, Mechanism, and Effect of Each Failed Component:				
			Item 1: Switch contacts were intermitten	nt.		
			_			
. •		C.	Root Cause of Failure:			

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U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET	LER NUMBER (6)				PAGE (3)	
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Watts Bar Nuclear Plant, Unit 1	05000390	97 -	011	01			

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

VI. ADDITIONAL INFORMATION (continued)

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

There were no component failures of this nature.

e. Manufacturer and Model Number of Each Failed Component:

Item 1: Westinghouse type W-2

B. <u>Previous Similar Event</u>

The subject LER is bounded by the findings of GL 96-01 reviews. GL 96-01 findings will be supplemented by the subject LER until the reviews are complete.

VII. COMMITMENTS

- 1. The appropriate Technical Reviewers will be informed of the requirements of GL 96-01 prior to restart of the first refueling outage.
- 2. Incomplete procedures will be revised prior to their next use or prior to restart of the first refueling outage (whichever comes first).
- 3. The surveillance test insufficiencies for Item 7 will be tested before the end of the first refueling outage. If circuit problems are noted, TVA will provide an additional supplement to the subject LER to address the safety significance of each finding prior to 30 days after restart following the first refueling outage.