

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

May 13, 2016

10 CFR 50.73

ATTN: Document Control Desk U.S. Nuclear Regulatory Commission Washington, D.C. 20555-0001

> Watts Bar Nuclear Plant, Unit 1 Facility Operating License No. NPF-90 NRC Docket No. 50-390

Subject: Licensee Event Report 390/2016-005-00, Both Trains of Unit 1 Emergency Gas Treatment System Inoperable During Unit 2 Testing

This submittal provides Licensee Event Report (LER) 390/2016-005-00. This LER provides details concerning an event where both trains of the Unit 1 Emergency Gas Treatment System were out of service simultaneously for less than 10 minutes. This report is being submitted in accordance with 10 CFR 50.73(a)(2)(v). A supplement to this LER will be submitted by July 12, 2016

Please direct any questions concerning this matter to Gordon Arent, WBN Licensing Director, at (423) 365-2004.

Respectfully,

Paul Śimmons Site Vice President Watts Bar Nuclear Plant

Enclosure cc: See Page 2 U.S. Nuclear Regulatory Commission Page 2 May 13, 2016

cc (Enclosure):

NRC Regional Administrator - Region II NRC Senior Resident Inspector - Watts Bar Nuclear Plant

NRC FORM 366 U.S. NUCLEAR REGULATORY COMMISSION						APPROVED BY OMB: NO. 3150-0104 EXPIRES: 10/31/201						10/31/2018					
(I1-2015) LICENSEE EVENT REPORT (LER) (See Page 2 for required number of digits/characters for each block)							Estimated burden per response to comply with this mandatory collection request: 80 hours Reported lessons learned are incorporated into the licensing process and fed back to industry Send comments regarding burden estimate to the FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to Infocollects.Resource@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 an information collection does not display a currently valit OMB control number, the NRC may not conduct or sponsor, and a person is not required to										
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Watt	s Bar N	luclear	Plant, U	Init 1					0500	00.	390		э. г	AGE 1	OF	5	
4. TITLE									1	_							
Both ⁻	Trains	of Unit	1 Emerg	gency (Gas Tre	eatme	nt Syste	em Inop	erable	Dı	uring Unit 2 T	esting					
5. E		ATE	6	. LER N	UMBER		7. F	REPORT	DATE		8.	OTHER F	ACIL	ITIES INVOLVED			
MONTH	DAY	YEAR	YEAR	SEQU	ENTIAL IBER	REV NO.	EV MONTH DAY		YEAR		FACILITY NAME				05	DOCKET NUMBER	
10	22	2015	2016	- 005	-	00	05	13	2016	;	FACILITY NAME				05	DOCKE 000	ET NUMBER
9. OPE	RATING	MODE	11.	THIS RE	EPORT IS	S SUB	NITTED F	URSUAN		łΕ	REQUIREMEN	TS OF 10	CFR	§: (Chec	k all t	hat a	pply)
			20.	.2201(b)			20.2	203(a)(3)	(i)		🔲 50.73(a)(2)(ii)(A)		5	0.73().73(a)(2)(viii)(A)	
			20.2201(d)				20.2	203(a)(3)	(ii)		50.73(a)(2)(ii)(B)	Т	5	0.73(a)(2)('	viii)(B)
	I		20.2203(a)(1)				20.2	203(a)(4)		50.73(a)(2)(iii)			50.73(a)(2)(ix)(ix)(A)	
			20.2203(a)(2)(i)				50.36(c)(1)(i)(A)			50.73(a)(2)(iv)(A)			Т	50.73(a)(2)(x)			x)
10. POV	VER LE	/EL	20.2203(a)(2)(ii)			50.36(c)(1)(ii)(A)		(A)	50.73(a)(2)(v)(A)				73.71(a)(4)				
			20.2203(a)(2)(iii)				50.36(c)(2)			50.73(a)(2)(v)(B)				73.71(a)(5)			
			20.2203(a)(2)(iv)			50.46(a)(3)(ii)				🛛 50.73(a)(2)(v)(C)		7	3.77(a)(1)		
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							50.7	'3(a)(2)(i)((C)	C) OTHER Specify in Abstract below or in NRC Form 366A					366A		
						12. L	CENSEE	CONTA	CT FOR	ТН	IIS LER						
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			13. COM	PLETE		E FOR	EACH C		ENT FAIL	UI.		D IN THIS	REPO			PE	
CAUSE		SYSTEM	COMP	ONENT	FACTU	RER	TO EPI	x	CAUSE		SYSTEM	COMPON	ENT	FACTUR	ER	1	
											15. EXF SUB	PECTED MISSION		MONTH	DA	(Y 0	YEAR
	S (If yes	s, complet	e 15. EXF	PECIED	SUBMIS	SION	DATE)				0	DATE		07	1	2	2016
ABSTRAC	or (Limit /arch	to 1400 sp 14, 201	aces, i.e., a 16. Wat	approxima ts Bar	Nucle	^{ngle-spa} ar Pla	ced typew ant (WF	ritten lines) BN) Un	it 1 det	tei	rmined throu	uah ena	ine	ering ar	alvs	sis tł	hat
both preo Octo acco Trea With being CFR	trains peratic ber 22 rdance tment both t g perfc 50.73	of eme onal tes 2, 2015 e with t Systen rains o ormed. (a)(2)(v	ergency sting of echnica n (EGTS f EGTS Theref v)(D), "I	gas ti Unit 2 Unit 1 al spec S)." A inope fore, th Event	reatme EGTS was in cificatio t the ti erable, nis con	ent sy 6. Th Mod on (TS me o the s ditior	stem (I ne inop le 1 and S) limiti f the ev pecifie n is bein n That (EGTS) erability d two ti ing con vent, Ui d safet ng repo Could I	were in y of A a rains o dition 1 nit 2 wa y funct prted pu Have P	nc ar f E foi as tio ur Pre	perable for ad B trains of EGTS were r operation of in "no Mod ons of Unit 1 suant to 10 evented Fulf	8 minu of Unit 1 require (LCO) 3 le," prio EGTS CFR 50 filment (tes, EG d to 3.6.9 r to wer 0.73 of a	10 seco TS tool be ope 0, "Emer initial fu e not ca (a)(2)(v Safety	rabl rabl rgen el lo apab)(C)	a du ace o acy (badir ble o anc ctior	ring on Gas ng. f 10 n."

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NRC FORM 366A U.S. NUCLE	U.S. NUCLEAR REGULATORY COMMISSION APPROVED BY OMB: NO. 3150-0104								
	/ENT REP UATION S	ORT (LER) HEET	Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to Infocollects Resource@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 an 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.						
1. FACILITY NAME		2. DOC	KET NUMBER	IUMBER 3. L					
Watts Bar Nuclear Plant, Unit 1		05000390		YEAR	SEQUENTIAL NUMBER	REV NO.			
		0000000		2016	- 005	- 00			
NARRATIVE I. PLANT OPERATING	CONDITIO	NS BEFORE THE	EVENT						

Daga 2 of F

Watts Bar Nuclear Plant (WBN) Unit 1 was in Mode 1 at 14 percent rated thermal power (RTP). WBN Unit 2 was in "no Mode" prior to initial fuel loading.

- II. DESCRIPTION OF EVENT
 - A. Event

On March 14, 2016, Watts Bar Nuclear Plant (WBN) Unit 1 determined through engineering analysis that both trains of emergency gas treatment system (EGTS) [EIIS: BH] were inoperable for 8 minutes, 10 seconds during preoperational testing of Unit 2 EGTS. The inoperability of A and B trains of Unit 1 EGTS took place on October 22, 2015, while Unit 1 was in Mode 1 and two trains of EGTS were required to be operable in accordance with technical specification (TS) limiting condition for operation (LCO) 3.6.9, "Emergency Gas Treatment System (EGTS)." At the time of the event, Unit 2 was in "no Mode," prior to initial fuel loading. With both trains of EGTS inoperable, the specified safety functions of Unit 1 EGTS were not capable of being performed. Therefore, this condition is being reported pursuant to 10 CFR 50.73(a)(2)(v)(C) and 10 CFR 50.73(a)(2)(v)(D), "Event or Condition That Could Have Prevented Fulfilment of a Safety Function."

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

Train A and train B EGTS were concurrently inoperable for 8 minutes, 10 seconds on October 22, 2015.

C. Dates and Approximate Times of Occurrences

Date	Time	Event
10/17/15	1007 EDT	WBN Unit 1 entered Mode 4 coming out of refueling outage 13
10/22/15	0118 EDT	Both trains Unit 1 EGTS inoperable due to Unit 2 test configuration
10/22/15	0126 EDT	Unit 2 EGTS train A suction dampers closed.

D. Manufacturer and Model Number of Components that Failed

There were no failed components associated with this event.

E. Other Systems or Secondary Functions Affected

There were no systems or secondary functions affected by this event.

F. Method of discovery of each Component or System Failure or Procedural Error

This issue was identified during the incorporation of Unit 2 EGTS system testing requirements into WBN engineering documents.

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		CENSEE EVENT REP CONTINUATION S	ORT (LER)	Estimated burden per response to com lessons learned are incorporated int comments regarding burden estimate f F53), U.S. Nuclear Regulatory Commi Infocollects.Resource@nrc.gov, and to NEOB-10202, (3150-0104), Office of M used to impose an information collectio NRC may not conduct or sponsor, a collection.	B150-0104 EXPIRES: 10/31/2018 Comply with this mandatory collection request: 80 hours. Reported into the licensing process and fed back to industry. Send to the FOIA, Privacy and Information Collections Branch (T-5 mission, Washington, DC 20555-0001, or by internet e-mail to to the Desk Officer, Office of Information and Regulatory Affairs Management and Budget, Washington, DC 20503. If a means ction does not display a currently valid OMB control number, the , and a person is not required to respond to, the information				
1. FACILITY NA	ME		2. DOC	KET NUMBER		3. LER NUMBEI	२		
Watts Bar Nuclear Plant, Unit 1			05000390	year 2016	SEQUENTIAL NUMBER - 005	RE NC	:v 5. 00		
NARRATIVE	G	Eailure Mode and Effect c	of Each Eailed Co	mpopent					
	U.	There were no componen	nt failures associa	ited with this event					
	ц	Operator Actions							
		There was no actual ever	t requiring opera	tor actions					
		Automatically and Manua	It requiring opera						
	1.	There were no automatic	or manual system	n responses associated	with this	sovent			
Ш С	AUSE		or manual system	in responses associated		, event.			
	Δ	The cause of each compr	onent or system f	ailure or personnel error	r if know	'n			
	,	There was no component	of system failure	associated with this ev	ent				
	В.	The cause(s) and circums	stances for each l	human performance rela	ated root	cause.			
		The cause of this event w and experience to fully un testing on a complex shar Unit 1 EGTS operable du	ras that engineers iderstand all issue red system. This ring the Unit 2 pre	s were assigned tasks were assigned tasks were as that needed to be ad resulted in inadequate eoperational testing.	<i>v</i> ithout th dressed special r	e requisite know for a first of a kin equirements to r	rledge nd naintai	in	
IV. AI	NALY	SIS OF THE EVENT							
O in: re ar	n Ocl adeq sult, f e:	tober 22, 2015, both trains out and special requirements the specified safety function	of Unit 1 EGTS w to maintain Unit 1 ns of EGTS could	vere inoperable for 8 min EGTS operable during I not be met. The speci	nutes, 1(Unit 2 E ified safe) seconds due to GTS testing. As ty functions of E	a GTS		
	1. 2. 3. 4.	To keep the air pressure v times in which the integrit To reduce the concentrati during a loss of coolant ac site boundary and low pop To withstand the safe shu To provide for initial and p	within each Shield y of that particula on of radioactive ccident (LOCA) in pulation zone (LP itdown earthquak periodic testing of	d Building annulus below r containment is require nuclides in annulus air n either reactor unit to le Z) dose rates below the e. the system capability to	w atmos ed. that is re vels suff a 10 CFF	beric pressure a leased to the en iciently low to ke 100 values. n as designed.	at all virons ep the	3	
EC ar EC wl ke or Ar 3.	GTS i ad 4 a GTS i hich e ep a n the n the nnulu 6.15.	is a dual unit system. TS L and TS 3.6.15 requires that must be capable of produci ensures that the EGTS is cannulus releases below the annulus of the unit undergo is in-leakage for the suction 4 in-leakage limit of ≤ 250 s	CO 3.6.9 require the Shield Buildin ing the correct flo apable of perform 10 CFR 100 limits bing a LOCA such path in service is scfm.	s both trains of EGTS b ng shall be Operable in w and pressure require ning Specified Safety Fu s. A single train of EGTS n that the specified safe s assumed to meet surv	e Opera Modes 1 ments re Inction 2 S is capa ty function reillance	ble in Modes 1, 2 I, 2, 3, and 4. The lative to the ann described above able of drawing s ons of EGTS are requirement (SF	2, 3, he ulus, ∍ to uction met. ₹)		

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NRC FORM (11-2015)		U.S. NUCLEAR REGULATO CENSEE EVENT REP CONTINUATION S	ORY COMMISSION ORT (LER) HEET	APPROVED BY OMB: NO. 318 Estimated burden per response to complessons learned are incorporated into comments regarding burden estimate the F53), U.S. Nuclear Regulatory Commin Infocollects.Resource@nrc.gov, and to NEOB-10202, (3150-0104), Office of Mu used to impose an information collectio NRC may not conduct or sponsor, an collection.	i0-0104 bly with this m b the licensin c the FOIA, P ssion, Washin the Desk Offic anagement and n does not dis id a person i	EXPIRE andatory collection request: 8 g process and fed back to rivacy and Information Colle gton, DC 20555-0001, or by ver, Office of Information and d Budget, Washington, DC 2 play a currently valid OMB of s not required to respond	S: 10/31/2018 30 hours. Reported 5 industry. Send ctions Branch (T-5 7 internet e-mail to 1 Regulatory Affairs, 20503. If a means control number, the to, the information
1. FACILITY	NAME		2. DOC			3. LER NUMBER	2
Watts Ba	r Nuclea	r Plant, Unit 1	05000390		YEAR		REV NO.
					2016	- 005	- 00
	Eecaus 2 annu would f A dema inopera addition inopera	se in-leakage from the Unit lus for 8 minutes, 10 secon have required that Unit 1 er and for EGTS did not exist o able, the conditions existed n, LCO 3.0.3 required actio able.	2 annulus was u ds, both trains sh nter TS LCO 3.0.3 during this timefr for less than the n completion time	nknown, and both EGTS nould have been declar 3. ame. During times wher TS LCO 3.6.9 required es were not exceeded w	S trains v ed inope e indivic action c /hen bot	were aligned to t rable on Unit 1 v lual trains of EG ⁻ ompletion times. h trains of EGTS	he Unit which TS were In Were
V.	ASSES	SMENT OF SAFETY CON	ISEQUENCES				
	A. B. C.	Availability of systems or o components and systems With both trains inoperable performed for 8 minutes, 1 in core damage and large a short-duration misalignm requirements were impose Unit 2 from the suction para adversely impacting Unit 1 For events that occurred w needed to shutdown the re- control the release of radio Not applicable. Watts Bar For failure that rendered a from the discovery of the f There was not an actual fa performed subsequent to	components that that failed during e, the specified s 10 seconds. The early release fre nent of EGTS is o ed during the Uni th of EGTS, shou 1 operation. when the reactor eactor and maint oactive material, Unit 1 was in Mo a train of a safety failure until the tra ailure associated the event, WBN	could have performed t g the event afety functions of Unit 1 WBN probabilistic risk equencies. As a result, a considered to be very sr it 2 EGTS test for operat uld it become necessary was shut down, availab ain safe shutdown cond or mitigate the consequ ode 1 at the time of this of system inoperable, an e ain was returned to serv with this event. In the e demonstrated that both	he same EGTS of model do any risk i nall. In a tors to cl to prevent ility of sy itions, re ences of event. estimate ice engineer trains of	function as the could not have be bes not consider ncrease associa iddition, special lose dampers to ent Unit 2 testing vstems or compo move residual h f an accident of the elapsed ti ing evaluation Unit 1 EGTS we	een EGTS ited with isolate i from onents ieat, ime
VI.		ECTIVE ACTIONS	10 seconds.	Authority Corrective Act	ion Proc		-
	tracked	under condition report 114	13076.			ligui gun is nemî	J
	Α.	Immediate Corrective Acti	ons				
		This issue was identified s report 1143076 was initiat	subsequent to the ed, and a past of	e inoperability of both tra perability evaluation per	iins of U formed.	nit 1 EGTS. Con	dition

					Pag	je 5 of 5		
NRC FORM 366A (11-2015)	U.S. NUCLEAR REGULAT	ORY COMMISSION	APPROVED BY OMB: NO. 315 Estimated burden per response to comp	50-0104 oly with this m	EXPIRE andatory collection request: 8	S: 10/31/2018 30 hours. Reported		
	CENSEE EVENT REP CONTINUATION S	ORT (LER) HEET NC Market Comments regarding burden estimate to the FOI F53), U.S. Nuclear Regulatory Commission, Wa Infocollects.Resource@nrc.gov, and to the Desk NEOB-10202, (3150-0104), Office of Managemer used to impose an information collection does n NRC may not conduct or sponsor, and a pers collection.			clicensing process and fed back to industry. Send FOIA, Privacy and Information Collections Branch (T-5 , Washington, DC 20555-0001, or by internet e-mail to Desk Officer, Office of Information and Regulatory Affairs, ement and Budget, Washington, DC 20503. If a means es not display a currently valid OMB control number, the person is not required to respond to, the information			
1. FACILITY NAME		2. DOC			3. LER NUMBER	2		
		0500000		YEAR	SEQUENTIAL NUMBER	REV NO.		
vvatts Bar Nuclea	r Plant, Unit 1	05000390		2016	- 005	- 00		
NARRATIVE	_							
B.	Corrective Actions to Prev	ent Recurrence						
	Watts Bar Unit 2 EGTS ha Unit 2 TS. Testing require appropriate controls to en	as been turned ov ements for EGTS sure that EGTS o	ver to plant operations, a were revised to suppor on the unit not undergoin	and is co t dual ur ng testin	ontrolled under th hit operation, incl g will remain ope	ne WBN uding erable.		
VII. ADDIT	IONAL INFORMATION							
А.	Previous similar events at	the same plant						
	None.							
В.	Additional Information							
	None.							
C .	Safety System Functional	Failure Consider	ration					
	Additional engineering an functional failure in accord July 12, 2016.	alysis is ongoing Jance with NEI 99	to determine if this ever 9-02. A supplement to th	nt constit nis LER ⁻	tuted a safety sy will be submitted	stem by		
D.	Scrams with Complication	s Consideration						
	None.							
VIII. COMM	ITMENTS					-		
None.								