ACCELERATED STRIBUTION DEMONSTRATION SYSTEM

ŚŅ

ł

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

FACIL:50-244 Robert Emmet AUTH.NAME 'AUTHOR A BACKUS,W.H. Rochester MECREDY,R.C. Rochester	Ginna Nuclea AFFILIATION C Gas & Elect	tric Corp. tric Corp.	: NO ochester		CKET # 000244 R
		-	•	_	-
SUBJECT: LER 91-009-00:on	911111, steam	m generator feedwat	er isolat	ions'	I
advanced digital valves manually o	feedwater co	ators.Caused by per ontrol sys.Feedwate /911211 ltr.	r regulat	ing	D
-	•		• •	10	S
DISTRIBUTION CODE: IE22T TITLE: 50.73/50.9 Licensee	COPIES RECE: Event Report	IVED:LTR / ENCL / rt (LER), Incident	SIZE: Rpt, etc.	10	/
NOTES:License Exp date in	accordance i	with 10CFR2,2.109(9	/19/72).	05 0	000244 A
	CODIDO	DRATDIDUM	000770		D
RECIPIENT ID CODE/NAME	COPIES LTTR ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR EN		·
PD1-3 LA	1 1	PD1-3 PD	1 1		D
JOHNSON, A	1 1				S
INTERNAL: ACNW	2 2	AEOD/DOA	1 1		
AEOD/DSP/TPAB NRR/DET/ECMB_9H	1 1 1 1	AEOD/ROAB/DSP NRR/DET/EMEB 7E	2 2		٩
NRR/DLPQ/LHFB10	1 1	NRR/DLPQ/LPEB10	1 1		
NRR/DOEA/OEAB	1 1	NRR/DREP/PRPB11	2 2		
NRR/DST/SELB 8D	1 1	NRR/DST/SICB8H3	1 1		
NRR/DST/SPLB8D1 REG FILE 02	1 1 1 1	NRR/DST/SRXB 8E	1 1		
RGN1 FILE 01	1 1 1 1	RES/DSIR/EIB	ТТ	- ·	
EXTERNAL: EG&G BRYCE, J.H	3 3	L ST LOBBY WARD	1 1		
NRC PDR	1 1	NSIC MURPHY,G.A	1 1	-	R
NSIC POORE,W.	1 1	NUDOCS FULL TXT	1 1	•	К
\sim					Ι
(at NO					D
	indl				D
Cant NO p 36497	016				S
v					

NOTE TO ALL "RIDS" RECIPIENTS:

PLEASE HELP US TO REDUCE WASTE! CONTACT THE DOCUMENT CONTROL DESK, ROOM PI-37 (EXT. 20079) TO ELIMINATE YOUR NAME FROM DISTRIBUTION LISTS FOR DOCUMENTS YOU DON'T NEED!

FULL TEXT CONVERSION REQUIRED TOTAL NUMBER OF COPIES REQUIRED: LTTR 31 ENCL 31

04

1.

Α

D

D

S

.

•

, .

.



ROCHESTER GAS AND ELECTRIC CORPORATION • 89 EAST AVENUE, ROCHESTER N.Y. 14649-0001



ROBERT C. MECREDY Vice President **Ginna Nuclear Production**

TELEPHONE AREA CODE 716 546-2700

December 11, 1991

U.S. Nuclear Regulatory Commission Document Control Desk Washington, DC 20555

LER 91-009, Automatic Feedwater Control Perturbations, Subject: Due To Electromagnetic Noise Spikes From Unrelated Relay Actuation, Caused Steam Generator Feedwater Isolation on High Level R.E. Ginna Nuclear Power Plant Docket No. 50-244

In accordance with 10 CFR 50.73, Licensee Event Report System, item (a)(2)(iv), which requires a report of, "any event or condition that resulted in manual or automatic actuation of any Engineered Safety Feature (ESF), including the Reactor Protection System (RPS)", the attached Event Report LER 91-009 is hereby submitted.

This event has in no way affected the public's health and safety.

Very truly yours,

Robert C. Mecredy

xc:

U.S. Nuclear Regulatory Commission Region I 475 Allendale Road

King of Prussia, PA 19406

Ginna USNRC Senior Resident Inspector

(et No a 1096 JE22

к. . **、** · .

. . .

.

af

۰. ۰

HAC Fe	-				· ·										10/11 47	ORY COMMISSION
19-631			-	۰			LIC	ENSE	E EVE	NT RE	PORT	(LER)	U., NU	APPRO		8 NO. 3180-010 4
					-		<u> </u>	<u></u>					*			
	T HANE		Nuc	lea	r Powei	- 1	lant	•					CRET NUMBER		μ. Δ. Λ	1 010 19
									turba	tions	. Due	To Elect	romanne	tic	Nois	e Snikes
Fron	n Unr	relate	ed Re	ela	y Actua	ti	on,	Caus	ed St	eam (Senera	tor Feedw	ater Is	olat	ion	on High
٤٧	ENT DAT	6 (6)		L	ER NUMBER I				POAT DAT		·		CILITIES INVO			
MONTH	DAY	YEAR	YEAR	88	SEQUENTIAL NUMBER	>	NUMBER	MONTH	DAY	YEAR		FACILITY NAME	4		- NUM88	
									ŀ		`			0 13	1010	
1 1	111	91	9 11	-	0 0 9	—	0 0	12	1 1	9 1				0 15	10 10	
	AATING		THIS AL	IPORT	Lange Lange Lange	2 201	USUANT	deserved a second			0-CFR \$1 10	Duck are or more al	the following! (1		· · · ·	
	181 3 00	<u> </u>	<u> </u>	.40211)			20.406	(a) <u>,</u>		X	88,736)(2)(H)			3.7101	
POWE		. 9.8			1(1)(8			80.360		<u>ن</u>		80.736)(2)(+)			171(4)	actly in Abreat
(10)					()())())())())			60.364 60.734			.	\$0,7361(2)(+6) \$0,7361(2)(+6)(A)		, <u> </u>	WOW AND WEAJ	IA TALL, NAC Form
200	•							60,734				\$0,73(4)(2)(+4)(8)				
			<u> </u>		1(1)(+)			-	1021040			80.73(a)(2)(=)		1		
								ICENSEE	CONTACT	POR THU	LEA (12)					
AME	- 1 -												AREA COOL	78187	ONE NU	MBER -
		H. 1			• ما ما	• • • •	^							5.7		
.16	ecnni	.cal /	45519	sta	nt to t							D IN THIS REPORT		1512	14 -	4 4 4 4
				<u> </u>				SACH C	CAPONEN Caronen	<u>6</u>	1		MANUFAC		ATABLE	
CAUSE	SYSTEM	court	DNENT		TURER	TO	MTABLE NPROS			CAUSI	1 SYSTEM	COMPONENT	TUARA	10	NADS	
	1									<u> </u>	<u> </u>					
										ŝ.	· .					
				L	EUPPLEME		ALPOPT	1 EXPLOT		<u> </u>		<u></u>		<u>_</u>	MON	TH CAY YEA
									· · ·				EXPECT SUBMIST DATE	LION		
716	5 []/ ym, c		XPECTED	SUBI	HISSION DATE				X NO						<u> </u>	
AFTAA	TILM	N 1400 LO	ocas, i s.,		simalary literan	aingro	ADALE TYP	ewritten H	ned (18)	-						
				•		•										
			•													
	On	Nov	vemb	er	11, 3	199	91 a	at a	ppro	xima	tely	1214 E	ST, wi	th 🕴	the	reactor
	at	ar	pro	xiı	mately	,	9.88	fu	<u>1</u> 1	powi	er, Ū	steam	genera	tor	fe	edwate
	is											enerator	s. T	hese	e fe	edwate
	is	olat	ion	s '	were	ca	used	l by	per	tur	batīc	ons of t	he ad	vano	ced	digita:
	fe	edwa	ter	С	ontro	1	sys	tem	whice	ch i	.ncre	ased fe	edwate	r f	low	to the
					ators.		-			•						•
			-		•											-
												ually co				
					valves	; 1	to 1	edu	ce s	team	n gen	erator	levels	an	d st	tabilize
	th	ē pl	ant	•				•.								
		-					4									
												s detern				
												advance				
					tem.	_				-	•					
		1	•										•			
	Co	rrec	tiv	e a	action	t	ake	n wa	s to	mod	lify	specific	relay	/ ci	rcu	its that
					g thes						-	-	-	•		
					-		-				•			t		
			1													
										-						

NRC Form 266 (6-63)

ų

•;

(a) (e e

.

.

•

*

NRC Form, 386A (9-83)	LIC	EVENT	REPOR	T	(LE	R)	TE	(T)	CON	ITINU	U.S. NUCLEAR REGULATORY COMMISE UATION APPROVED OMS 40 3150-0104 EXPIRES 8/31:35										
FACILITY NAME (1)					I ~	DCKE	T NU	MBEN	L (2)			,		L				AGE IS	13		
	•	,	,							•		E	VEAR	•	NUMBER	- ALVISION		Π			
R.E. Ginn	a Nuclear	Power	Plant		0	5	0	0	0	2	4 4		9 1		0 0 9	- 0 10	012	OF	0 19		
TEXT IN more space in re	pured, use eductorial	NAC Form 38	447 (17)	• •			N	ĸ			÷ *							4			

PRE-EVENT PLANT CONDITIONS

Τ.

The plant was at approximately 98% steady state reactor power with no major activities in progress. The Maintenance Department was performing troubleshooting, to determine the source of electromagnetic noise spikes in the Advanced Digital Feedwater Control System (ADFCS). The troubleshooting was being performed under the guidance of Work Order package #9122181. Unexplained electromagnetic noise spike problems were identified previously as coinciding with the start of the diesel fire pump, and which had minor effect on the ADFCS control functions.

The ADFCS was installed during the 1991 Annual Refueling and Maintenance Outage. These electromagnetic noise spikes were first noticed on June 4, 1991, when a minor feedwater perturbation occurred, following a diesel fire pump start. Since June 4, spikes have occurred almost every time the diesel fire pump has started. The ADFCS has handled spikes with no noticeable feedwater perturbations, except for two (2) occasions. These occasions, the first on June 4, 1991 and the second on September 13, 1991, were handled by the ADFCS in automatic and no operator action was required.

There has been an ongoing search for the possible source of this electromagnetic noise spike so that it could be corrected. As part of this ongoing search, the Electrical Engineering Department evaluated their cable tray database and identified circuit E174 as a possible source. Circuit E174 is the 125 Volt DC power feed to the fire relay panel and shares some cable trays with ADFCS input cables, most notably, the feedwater header pressure inputs to ADFCS (P501 and P502).

4

. ' .

,

ADF exc the pre sch wer all		acted and on data av Engineering mended that ADFCS input August, 199 are correct	ation (the could not ailable. Departmen the shid ts be che 1. This	t explain In conju nt, Westin elding and ecked. The check ind	urer of t the ADI inction with a ground hese inpulicated th	the FCS ith nad ing its
Wes ADF exc the pre sch wer all II. <u>DES</u>	tinghouse Elec CS) was cont ursions based Electrical I viously recom emes for all e checked in ADFCS inputs <u>CRIPTION OF EV</u>	etric Corpora acted and on data av Engineering mended that ADFCS inpu August, 199 are correct	ation (the could not ailable. Departmen the shie ts be che 1. This	e manufact e manufact c explain In conju nt, Westin elding and ecked. The check ind	urer of t the ADI inction wi nghouse h d ground hese inpu licated th	the FCS ith nad ing its
Wes ADF exc the pre sch wer all II. <u>DES</u>	tinghouse Elec CS) was cont ursions based Electrical I viously recom emes for all e checked in ADFCS inputs <u>CRIPTION OF EV</u>	etric Corpora acted and on data av Engineering mended that ADFCS inpu August, 199 are correct	ation (the could not ailable. Departmen the shid ts be che 1. This	e manufact c explain In conju nt, Westin elding and ecked. Th check ind	urer of t the ADI Inction wi nghouse h d groundi hese inpu licated th	the FCS ith nad ing its
Wes ADF exc the pre sch wer all II. <u>DES</u>	tinghouse Elec CS) was cont ursions based Electrical I viously recom emes for all e checked in ADFCS inputs <u>CRIPTION OF EV</u>	acted and on data av Engineering mended that ADFCS input August, 199 are correct	could not ailable. Departmen the shid ts be che 1. This	t explain In conju nt, Westin elding and ecked. The check ind	the ADI Inction winghouse h d groundi hese inpu licated th	FCS ith nad ing uts
ADF exc the pre sch wer all II. <u>DES</u>	CS) was cont ursions based Electrical I viously recom emes for all e checked in ADFCS inputs <u>CRIPTION OF EV</u>	acted and on data av Engineering mended that ADFCS input August, 199 are correct	could not ailable. Departmen the shid ts be che 1. This	t explain In conju nt, Westin elding and ecked. The check ind	the ADI Inction winghouse h d groundi hese inpu licated th	FCS ith nad ing uts
	•		h			
Α.	DATES AND AP					
		PROXIMATE T	IMES OF M	AJOR OCCUP	RRENCES:	
,		er 11, 1991 mate Time.	, 1214 E	ST: Ever	nt Date a	and
		er 11, 1991, mate Time.	1214 EST	: Discove	ery Date a	and
		er 15, 1991 ied and sup				
В.	EVENT:		• *		·	
•	On November the reactor diesel fire troubleshoot	at approx	imately tarted, a	98% full s require	power,	the
	Approximatel fire pump wa (G-22) was r	s started a	30) secon n "ADFCS	nds after System Tro	the die ouble" ala	sel arm
	The Control control had "A" and "B (FRV) contro fire pump.	pre-positi "S/G Main	oned hims Feedwate	elf in fi er Regula	ront of ting Val	the ves

ς,

• •

. .

ти ,

-

At this time, the Control Room operator noticed that both the "A" and "B" Steam Generator (\$/6) main feedwater flows were pegged high with both "A" and "B" \$/6 Main Feedwater Regulating Valves continuing to open further. The condensate low pressure heater bypass valve opened automatically and the standby condensate pump started automatically and the standby condensate pump started automatically and "B" S/6 levels continued to increase and before the Control Room operator could shift the FRVs to manual, ADFCS automatically shifted the FRVs to manual, ADFCS automatically and Ge (5/6 B HI LEVEL CHANNEL ALERT 67%) and G-6 (\$/6 B HI LEVEL CHANNEL ALERT 67%) and feedwater control was returned to automatic. After main feedwater control was returned to automatic bloed decrease was closed, the condensate booster pumps were restored, and the standby condensate pumps were restored, and the standby condensate pumps were restored, and the standby condensate pump such and feedwater control was returned to automatic bloed decrease was the condensate booster pumps were restored, and the standby condensate pump such and feedwater control was returned to automatic.	NRC Form 386A 9-631	LICENSEE EVENT REP	ORT (LER) TEXT CONT	INUATION		ULATORY COMMISSI ME 40 3150-0104 1/85
At this time, the Control Room operator noticed that both the "A" and "B" Steam Generator (5/G) main feedwater flows were pegged high with both "A" and "B" S/G Main Feedwater Regulating Valves continuing to open further. The condensate low pressure heater bypass valve opened automatically and the standby condensate pump started automatically (to increase main feedwater pump suction pressure). Main Feedwater pump suction pressure was decreasing due to the increased feedwater flow to the S/GS. The "A" and "B" S/G levels continued to increase and before the Control Room operator could shift the FRVs to manual. While the Control Room operator was manually lowering the setpoints for the FRV controllers, to control S/G level, the following alarms annunciated and feedwater isolation occurred on both S/Gs; G-4 (S/G A HI LEVEL CHANNEL ALERT 67%) and G-6 (S/G B HI LEVEL CHANNEL ALERT 67%). Immediately following the feedwater isolation, the condensate booster pumps tripped on high pressure. A load decrease was initiated at 10%/hour to lessen the impact of unstable S/G levels stabilized and main feedwater isolation occurring due to the event. During the S/G level stabilization, S/G feedwater isolation occurred several times. The S/G levels were subsequently stabilized and main feedwater control was returned to automatic. After main feedwater control was returned to automatic the load decrease was terminated. Total load decrease was approximately 0.5% full power during the event. Subsequently, the condensate low pressure heater bypass valve was closed, the condensate booster pumps were restored, and the standby condensate pump was	ACILITY NAME (1) -	· ·	DOCKET NUMBER (2)			PAGE (3)
At this time, the Control Room operator noticed that both the "A" and "B" Steam Generator (S/G) main feedwater flows were pegged high with both "A" and "B" S/G Main Feedwater Regulating Valves continuing to open further. The condensate low pressure heater bypass valve opened automatically and the standby condensate pump started automatically (to increase main feedwater pump suction pressure). Main Feedwater pump suction pressure was decreasing due to the increased feedwater flow to the S/Gs. The "A" and "B" S/G levels continued to increase and before the Control Room operator could shift the FRVs to manual. While the Control Room operator was manually lowering the setpoints for the FRV controllers, to control S/G level, the following alarms annunciated and feedwater isolation occurred on both S/Gs; G-4 (S/G A HI LEVEL CHANNEL ALERT 67%) and G-6 (S/G B HI LEVEL CHANNEL ALERT 67%). Immediately following the feedwater isolation, the condensate booster pumps tripped on high pressure. A load decrease was initiated at 10%/hour to lessen the impact of unstable S/G levels. Main feedwater to the S/Gs was controlled in manual in order to stop secondary system oscillations that were occurring due to the event. During the S/G level stabilization, S/G feedwater isolation occurred saveral times. The S/G levels were subsequently stabilized and main feedwater control was returned to automatic. After main feedwater control was returned to automatic the load decrease was terminated. Total load decrease was approximately 0.5% full power during the event. Subsequently, the condensate low pressure heater bypass valve was closed, the condensate pomp was	R.E. Ginna Nucl	ear Power Plant	0 15 10 10 10 12 1 4	491-000	0 0 0	0 4 0F 0
 both the "A" and "B" Steam Generator (S/G) main feedwater flows were pegged high with both "A" and "B" S/G Main Feedwater Regulating Valves continuing to open further. The condensate low pressure heater bypass valve opened automatically and the standby condensate pump started automatically (to increase main feedwater pump suction pressure). Main Feedwater pump suction pressure was decreasing due to the increased feedwater flow to the S/Gs. The "A" and "B" S/G levels continued to increase and before the Control Room operator could shift the FRVs to manual, ADFCS automatically shifted the FRVs to manual. While the Control Room operator was manually lowering the setpoints for the FRV controllers, to control S/G level, the following alarms annunciated and feedwater isolation occurred on both S/Gs; G-4 (S/G A HI LEVEL CHANNEL ALERT 67%). Immediately following the feedwater isolation, the condensate booster pumps tripped on high pressure. A load decrease was initiated at 10%/hour to lessen the impact of unstable S/G levels. Main feedwater to stop secondary system oscillations that were occurring due to the event. During the S/G level stabilization, S/G feedwater isolation occurred several times. The S/G levels were subsequently stabilized and main feedwater control was returned to automatic. 	CT /// more space is required, use add	Nonel NAC Form JOEA's/ (17)		- * * * * * * * * * * * * * * * * * * *		· · ·
 both the "A" and "B" Steam Generator (S/G) main feedwater flows were pegged high with both "A" and "B" S/G Main Feedwater Regulating Valves continuing to open further. The condensate low pressure heater bypass valve opened automatically and the standby condensate pump started automatically (to increase main feedwater pump suction pressure). Main Feedwater pump suction pressure was decreasing due to the increased feedwater flow to the S/GS. The "A" and "B" S/G levels continued to increase and before the Control Room operator could shift the FRVs to manual, ADFCS automatically shifted the FRVs to manual. While the Control Room operator was manually lowering the setpoints for the FRV controllers, to control S/G level, the following alarms annunciated and feedwater isolation occurred on both S/GS; G-4 (S/G A HI LEVEL CHANNEL ALERT 67%) and G-6 (S/G B HI LEVEL CHANNEL ALERT 67%). Immediately following the feedwater isolation, the condensate booster pumps tripped on high pressure. A load decrease was initiated at 10%/hour to lessen the impact of unstable S/G level stabilization, S/G feedwater isolation occurring due to the event. During the S/G level stabilization, S/G feedwater isolation occurred several times. The S/G levels were subsequently stabilized and main feedwater control was returned to automatic. 	·		4 ¹	*		-
 both the "A" and "B" Steam Generator (S/G) main feedwater flows were pegged high with both "A" and "B" S/G Main Feedwater Regulating Valves continuing to open further. The condensate low pressure heater bypass valve opened automatically and the standby condensate pump started automatically (to increase main feedwater pump suction pressure). Main Feedwater pump suction pressure was decreasing due to the increased feedwater flow to the S/GS. The "A" and "B" S/G levels continued to increase and before the Control Room operator could shift the FRVs to manual, ADFCS automatically shifted the FRVs to manual. While the Control Room operator was manually lowering the setpoints for the FRV controllers, to control S/G level, the following alarms annunciated and feedwater isolation occurred on both S/GS; G-4 (S/G A HI LEVEL CHANNEL ALERT 67%) and G-6 (S/G B HI LEVEL CHANNEL ALERT 67%). Immediately following the feedwater isolation, the condensate booster pumps tripped on high pressure. A load decrease was initiated at 10%/hour to lessen the impact of unstable S/G level stabilization, S/G feedwater isolation occurring due to the event. During the S/G level stabilization, S/G feedwater isolation occurred several times. The S/G levels were subsequently stabilized and main feedwater control was returned to automatic. 	۰. ۱	•		,		
 opened automatically and the standby condensate pump started automatically (to increase main feedwater pump suction pressure was decreasing due to the increased feedwater flow to the S/Gs. The "A" and "B" S/G levels continued to increase and before the Control Room operator could shift the FRVs to manual. While the Control Room operator was manually lowering the setpoints for the FRV controllers, to control S/G level, the following alarms annunciated and feedwater isolation occurred on both S/Gs; G-4 (S/G A HI LEVEL CHANNEL ALERT 67%). Immediately following the feedwater isolation, the condensate booster pumps tripped on high pressure. A load decrease was initiated at 10%/hour to lessen the impact of unstable S/G levels. Main feedwater to the S/Gs was controlled in manual in order to stop secondary system oscillations that were occurring due to the event. During the S/G level stabilization, S/G feedwater control was returned to automatic. After main feedwater control was returned to automatic the load decrease was terminated. Total load decrease was approximately 0.5% full power during the event. Subsequently, the condensate booster pumps were restored, and the standby condensate pump were 	·	both the " feedwater f "B" S/G Mai	A" and "B" St lows were pegge n Feedwater Rec	eam Generat ed high with	or (S/G) h both ") main A" and
 pressure was decreasing due to the increased feedwater flow to the S/Gs. The "A" and "B" S/G levels continued to increase and before the Control Room operator could shift the FRVs to manual, ADFCS automatically shifted the FRVs to manual. While the Control Room operator was manually lowering the setpoints for the FRV controllers, to control S/G level, the following alarms annunciated and feedwater isolation occurred on both S/Gs; G-4 (S/G A HI LEVEL CHANNEL ALERT 67%) and G-6 (S/G B HI LEVEL CHANNEL ALERT 67%). Immediately following the feedwater isolation, the condensate booster pumps tripped on high pressure. A load decrease was initiated at 10%/hour to lessen the impact of unstable S/G levels. Main feedwater to the S/Gs was controlled in manual in order to stop secondary system oscillations that were occurring due to the event. During the S/G level stabilization, S/G feedwater isolation occurred several times. The S/G levels were subsequently stabilized and main feedwater control was returned to automatic. After main feedwater control was returned to automatic the load decrease was terminated. Total load decrease was approximately 0.5% full power during the event. Subsequently, the condensate low pressure heater bypass valve was closed, the condensate booster pumps were restored, and the standby condensate pump was 		opened autor started aut	matically and th comatically (to	ne standby o increase	condensat main fee	e pump dwater
 shifted the FRVs to manual. While the Control Room operator was manually lowering the setpoints for the FRV controllers, to control S/G level, the following alarms annunciated and feedwater isolation occurred on both S/Gs; G-4 (S/G A HI LEVEL CHANNEL ALERT 67%) and G-6 (S/G B HI LEVEL CHANNEL ALERT 67%). Immediately following the feedwater isolation, the condensate booster pumps tripped on high pressure. A load decrease was initiated at 10%/hour to lessen the impact of unstable S/G levels. Main feedwater to the S/Gs was controlled in manual in order to stop secondary system oscillations that were occurring due to the event. During the S/G level stabilization, S/G feedwater isolation occurred several times. The S/G levels were subsequently stabilized and main feedwater control was returned to automatic. After main feedwater control was returned to automatic the load decrease was terminated. Total load decrease was approximately 0.5% full power during the event. Subsequently, the condensate booster pumps were restored, and the standby condensate pump was 	•	pressure was flow to the to increase	s decreasing due S/Gs. The "A" a and before t	to the incr nd "B" S/G l he Control	eased fee evels cor Room or	edwater ntinued perator
 alarms annunciated and feedwater isolation occurred on both S/Gs; G-4 (S/G A HI LEVEL CHANNEL ALERT 67%) and G-6 (S/G B HI LEVEL CHANNEL ALERT 67%). Immediately following the feedwater isolation, the condensate booster pumps tripped on high pressure. A load decrease was initiated at 10%/hour to lessen the impact of unstable S/G levels. Main feedwater to the S/Gs was controlled in manual in order to stop secondary system oscillations that were occurring due to the event. During the S/G level stabilization, S/G feedwater isolation occurred several times. The S/G levels were subsequently stabilized and main feedwater control was returned to automatic. After main feedwater control was returned to automatic the load decrease was terminated. Total load decrease was approximately 0.5% full power during the event. Subsequently, the condensate low pressure heater bypass valve was closed, the condensate booster pumps were restored, and the standby condensate pump was 	`	shifted the operator 'was	FRVs to manual s manually lower	. While the set	ne Contro tpoints f	l Room for the
 condensate booster pumps tripped on high pressure. A load decrease was initiated at 10%/hour to lessen the impact of unstable S/G levels. Main feedwater to the S/Gs was controlled in manual in order to stop secondary system oscillations that were occurring due to the event. During the S/G level stabilization, S/G feedwater isolation occurred several times. The S/G levels were subsequently stabilized and main feedwater control was returned to automatic. After main feedwater control was returned to automatic the load decrease was terminated. Total load decrease was approximately 0.5% full power during the event. Subsequently, the condensate low pressure heater bypass valve was closed, the condensate pump was 		alarms annu on both S/G	nciated and fee s; G-4 (S/G A H	edwater iso] I LEVEL CHAN	lation oc NNEL ALEF	curred
 secondary system oscillations that were occurring due to the event. During the S/G level stabilization, S/G feedwater isolation occurred several times. The S/G levels were subsequently stabilized and main feedwater control was returned to automatic. After main feedwater control was returned to automatic the load decrease was terminated. Total load decrease was approximately 0.5% full power during the event. Subsequently, the condensate low pressure heater bypass valve was closed, the condensate booster pumps were restored, and the standby condensate pump was 	•	condensate load decreas impact of ur	booster pumps tr se was initiated nstable S/G leve	ripped on h at 10%/hou ls. Main f	igh press r to less eedwater	sure. A sen the to the
the load decrease was terminated. Total load decrease was approximately 0.5% full power during the event. Subsequently, the condensate low pressure heater bypass valve was closed, the condensate booster pumps were restored, and the standby condensate pump was	•	'secondary sy to the even S/G feedwate S/G levels	ystem oscillation it. During the er isolation occ were subsequent	ons that were S/G level curred seven ntly stabil	e occurri stabiliz cal times ized and	ing due zation, . The
	- -	the load dec was approxin Subsequently bypass valve	rease was termi mately 0.5% ful 7, the condens was closed, th	nated. Tota 1 power dur ate low pi 1 condensate	l load de ing the ressure e booster	ecrease event. heater pumps
•						-

•

.

.

•

- , . . · , . .

,

*

NRC Form 3 (9-63)	64 A		LIC	CENSEE EVENT REPOR	IT (LER) T	EXT CON	TINU	JATIO	N			UCLEAR RE APPROVED EXPIRES &/			
FACILITY N	AME (1)		t	<u>بر میں معلم میں م</u>	DOCKET NUM	LEA (2)			· · ·	NUMBE		-	1	PAGE	3)
,								VEAR	I	NUME	1 <u>4 </u>	NUMBE	1		
R.E.	Ginna	Nucle	ear	Power Plant	0 5 0	0 0 2 1	4 4	9 1		0 0	9.	- 0 0	0 15	OF	0 9
TEXT III more	10000 A /04	ured, use ed	#tone	NRC Form 3884's) (17)								-			,
		(2.	INOPERABLE S CONTRIBUTED T			OMPO	ONEN	ΤS,	OF	2 2	YSTE	MS !	ТНА	T,
				None.	•		•		•						
		I).	OTHER SYSTEMS	OR SEC	CONDARY	r FC	NCT	ION	s ai	FFE	CTED:	:		
				None.											
		1	3.	METHOD OF DIS	COVERY	•									
				The event was indications i					ent	due	e to	o ala	rms	an	d
		۔ ا	?•	OPERATOR · ACTI	ON:										
				The Control actions to c and stabilize Room operator Nuclear Regul emergency, 4	ontrol the p s noti atory (S/G 1 blant. fied 1 Commiss	eve S hig sion	ls, ubse her n pe	re que su	duc entl perv	e p Y, Vis	oower the ion	le Con and	vel tro th	í
		G	5.	SAFETY SYSTEM	RESPON	ISES:						-	-		
				The "A" and feedwater iso				l au	ton	ati	cal	ly f	rom	th	e
	III	• •	<u>AU</u>	<u>SE OF EVENT</u>							ŧ				
		1	۱.	IMMEDIATE CAU	SE:	a									
Ľ			•	The feedwater due to the "? >/ = 67%.											
												•			
	*														
														-	

• . .

,

d

ч . μ

1

	B.	INTERMEDIATI The "A" and due to incr by a perturb electromagne header press ROOT CAUSE: After exten that the sp header press tion of Rela	"B" S/G narrow eased feedwater pation of the AD ation of the AD sure inputs to A sive troublesho pikes that affe sure inputs were	range flow FCS. FCS wa es affe DFCS, (DFCS, (to both s appare cting th i.e. P50 it was the ADFC	vere > S/Gs ently he fee 1 and s dete CS fee	caused due to dwater P502). ermined
EXT /// more spece a required, use	B.	INTERMEDIATI The "A" and due to incr by a perturb electromagne header press ROOT CAUSE: After exten that the sp header press tion of Rela	2 CAUSES: "B" S/G narrow eased feedwater pation of the AD ation of the AD etic noise spike sure inputs to A sive troublesho pikes that affe sure inputs were	range flow FCS. FCS wa Soffe DFCS, (-0 0 9 levels v to both s appare ecting th i.e. P50 it was the ADFC	0_0 were > S/Gs ently he fee 1 and s dete CS fee	due to due to edwater P502).
EXT III more seece a recurred, use	B.	INTERMEDIATI The "A" and due to incr by a perturb electromagne header press ROOT CAUSE: After exten that the sp header press tion of Rela	2 CAUSES: "B" S/G narrow eased feedwater pation of the AD ation of the AD etic noise spike sure inputs to A sive troublesho pikes that affe sure inputs were	range flow FCS. FCS wa es affe DFCS, (DFCS, (levels v to both s appare ecting th i.e. P50 it was the ADFC	vere > S/Gs ently he fee 1 and s dete CS fee	due to due to edwater P502).
	В.	INTERMEDIATH The "A" and due to incr by a perturk The perturk electromagne header press ROOT CAUSE: After exten that the sp header press tion of Rela	"B" S/G narrow eased feedwater pation of the AD ation of the AD sure inputs to A sive troublesho pikes that affe sure inputs were	flow FCS. FCS wa es affe DFCS, (Doting, ected	to both s appare cting th i.e. P50 it was the ADFC	S/Gs ently he fee 1 and 5 dete 25 fee	caused due to dwater P502). ermined
		The "A" and due to incr by a perturn The perturn electromagne header press ROOT CAUSE: After exten that the sp header press tion of Rela	"B" S/G narrow eased feedwater pation of the AD ation of the AD sure inputs to A sive troublesho pikes that affe sure inputs were	flow FCS. FCS wa es affe DFCS, (Doting, ected	to both s appare cting th i.e. P50 it was the ADFC	S/Gs ently he fee 1 and 5 dete 25 fee	caused due to dwater P502). ermined
		The "A" and due to incr by a perturn The perturn electromagne header press ROOT CAUSE: After exten that the sp header press tion of Rela	"B" S/G narrow eased feedwater pation of the AD ation of the AD sure inputs to A sive troublesho pikes that affe sure inputs were	flow FCS. FCS wa es affe DFCS, (Doting, ected	to both s appare cting th i.e. P50 it was the ADFC	S/Gs ently he fee 1 and 5 dete 25 fee	caused due to dwater P502). ermined
		The "A" and due to incr by a perturn The perturn electromagne header press ROOT CAUSE: After exten that the sp header press tion of Rela	"B" S/G narrow eased feedwater pation of the AD ation of the AD sure inputs to A sive troublesho pikes that affe sure inputs were	flow FCS. FCS wa es affe DFCS, (Doting, ected	to both s appare cting th i.e. P50 it was the ADFC	S/Gs ently he fee 1 and 5 dete 25 fee	caused due to dwater P502). ermined
	с.	due to incr by a perturb The perturb electromagne header press ROOT CAUSE: After exten that the sp header press tion of Rela	eased feedwater bation of the AD ation of the AD sure inputs to A sure troublesho pikes that affe sure inputs were	flow FCS. FCS wa es affe DFCS, (Doting, ected	to both s appare cting th i.e. P50 it was the ADFC	S/Gs ently he fee 1 and 5 dete 25 fee	caused due to dwater P502). ermined
	C.	electromagne header press ROOT CAUSE: After exten that the sp header press tion of Rela	etic noise spike sure inputs to A sive troubleshe pikes that affe sure inputs were	es affe DFCS, (poting, ected 1	i.e. P50 i.e. was it was the ADFC	ne fee 1 and : dete 25 fee	edwater P502). ermined edwater
	C.	After exten that the sp header press tion of Rela	sive troublesho pikes that affe sure inputs were	ected	the ADFC	S fee	edwater
•		that the sp header press tion of Rela	pikes that affe sure inputs were	ected	the ADFC	S fee	edwater
·	`	light, de-e after a die energization magnetic noi the feedwat cables can transmitter common cable AR80 relay,	ay AR80, locate which lights th nergizes approx esel fire pump h, inductive "ki ise spike to be er header pres rying the fe (PT-501 and F e trays with th and a noise spi} to the feedwa	d in the imately start ckback genera sure i edwate T-502) e DC p ce was	he fire f el fire f y 10 to . Duri " causes ted and .nputs. er heade inputs ower sou induced f	relay pump t 15 s ng th an el induce The er pr share irce f from th	panel. crouble seconds is de- lectro- ed into signal cessure e some for the he AR80
IV.	<u>ANALY</u>	SIS OF EVEN	<u>r</u>	,			
	Licer requi resul Safet Syste	nsee Event res reportinted in manua ry Feature em (RPS)". 1	portable in acc Report System, ing of, "any al cr automatic (ESF) includin The feedwater is matic actuation	item event actuati g the colation	(a)(2) or con ion of an Reactor n of the	(iv), ditior y Engi Prot "A" a	which n that ineered tection
							,

-N

• • •

NRC Form 386A (9-83)	LIC	ENSEE EVENT RI	EPORT (LER) TEXT CONT		U.S. NUCLEAR REGUL APPROVED OMB EXPIRES 8/31 1	40 3150-0104
ACILITY NAME (1)			OOCKET NUMBER 121		ITIAL REVISION	PAGE 131
R.E. GINNA		Power Plant	0 5 0 0 0 2 4) 7 OF 0
-		-		• •		
	cons	sequences a	was performed cond implications ts and conclusio	of this e	ooth the sevent wit	safety h the
	The imp	re were no lications at	o operational o tributed to the fe	r safety c edwater iso:	onsequenc lations be	es or cause:
۰ ۲	ο	The feedwa levels.	ter isolations o	ccurréd at t	hè requir	ed S/G
	ο	The plant of the FRV	was quickly sta s was accomplishe	bilized and d to mitigat	manual c e the tran	ontrol sient.
	ο		edwater isolation ns of the FSAR for			
			bove, it can be ety were assured			blic's
v.	CORI	RECTIVE ACTI	CON		•	
	A.	ACTION TAN NORMAL STA	KEN TO RETURN AF: ATUS:	FECTED SYSTE	ims to pre	-EVENT
•	,	from troub was r	Diesel Fire Pum service pending pleshooting and eturned to service was installed a	the outcom determination ce after a no	e of root on. (The oise suppr	cause e pump
		the	S/G levels were ADFCS perturbat placed in automa	ion termina	tion, the	ent to e FRVs
		retur press conde stand	the plant had b rned to automatic sure heater bypa ensate booster pu lby condensate pun automatic standby	control, th ass valve w umps were r mp was secur	e condensa vas closed estored a	te low 1, the nd the
•			•.			

.

ъ. *

n

•

۴.

•

	NT REPORT (LER) TEXT CONTI	REPORT (LER) TEXT CONTINUATION												
FACILITY NAME (1)	DOCKET NUMBER (2)		LEA NUMBER ())	PAG	8 131								
- ·	ja se	VEAR	SEQUENTIAL	- REVISION		T								
R.E. Ginna Nuclear Power Pla	nt 0 5 0 0 0 2 4	4 9 1	- 0 10 1 9	0 0 0	0 18 0	DF 0 1 9								
TEXT IN more space is required, use addreams NRC Form 3064's1(17)	<u></u>				10101									
					•									

B. ACTION TAKEN OR PLANNED TO PREVENT RECURRENCE:

 A reverse-biased diode was temporarily installed across the coil of AR80 on November 15, 1991 and subsequent testing determined that the spikes from the AR80 circuit, affecting ADFCS feedwater pressure inputs following diesel fire pump starts, were eliminated. This noise suppression diode was permanently installed on November 18, 1991.

After reviewing the results of troubleshooting and the discussion with Westinghouse, the following is an outline of the corrective actions being taken or planned in response to the ADFCS noise spiking events:

Short Term Response

- a) Operations personnel were made aware that one source of spikes on ADFCS was eliminated, but that spikes from other sources, while reduced in frequency and magnitude, might occur. Operations will identify any new spikes on the ADFCS by submitting a Work Request/Trouble Report (WR/TR).
- b) A WR/TR was submitted for installation of a diode for the fire booster pump relay AR85 (which also produces small spikes on ADFCS). However, these spikes are not of the same magnitude as the noise spikes that were caused by the Diesel Fire Pump starts.
- o Intermediate Term Response

Electrical Engineering will consult with Westinghouse concerning a database change to increase the ADFCS slew rate filter constant. This filter is used to dampen any abrupt changes to feedwater regulating valve demand in the event that feedwater header pressure input values are rejected due to noise spikes. It is thought

• • • , , _

• at ,

N

NRC Form 38 (9-83)	HA	LIC	ENSEE	EVENT	REPOR	Т (LEF	r (R	EX	T (CON	ITI	NU	AT		N		U		APPR		ULATO			EION
FACILITY NA	LME (1)	•				00	CKET	NUN	MEER	(2)					,	LE	R NU	MEER	(6)				PAGE	(3)	
	•		-											•€	AR		SEQ	JENTI. JMBEI	<u></u>	-F	EVISION UMBER		١,	Γ	
R.E.	Ginna	Nuclear	Power	Plant		0	5	0	0	0	2	4	4	9	1	-	0	0) .	-	0 0	019	0	0	9
		, , ,		valu spik quic head spik	thi e f e. kly er p es l	ol re as	lo In ss t	wi tọi tọi le	ng ea e, ss	si a t	a .ng .ft :ha	f coi er	ee th rre a	dw is ec s	vat s t spi	co co va ke	: ons alu e l	hè sta 1e 1as	ad nt fo d	er or ec	vil wil fe aye	res: l · i edwa	sur mor ate	e e r	
		-	0	. Long a)	Ter Ele Wes rev	ct	ri .ng	ica Jhc	al ous	e	Enc	or	:	t	he	-	re	su	lt	S	of		hei	r	

to arbitration values instead of feedwater header pressure field input values is substituting erroneous values for feedwater header pressure used in FRV demand calculations.
b) Electrical Engineering will evaluate the routing of feedwater header pressure input circuits (to the ADFCS), and will identify

the error checking routine for the switching

This review will determine if

routing of feedwater header pressure input circuits (to the ADFCS), and will identify any additional modifications that may be required to eliminate the electromagnetic noise spike concern.

VI. ADDITIONAL INFORMATION

A. FAILED COMPONENTS:

None

B. PREVIOUS LERS ON SIMILAR EVENTS:

software.

A similar LER event historical search was conducted with the following results: No documentation of 'imilar LER events with the same root cause could be .dentified.

C. SPECIAL COMMENTS:

None.

. ٩ • • •

ĸ