Georgia Power Company 40 Inverness Center Parkway Post Office Box 1295 Birmingham, Alabama 35201 Telephone 205 877-7279

J. T. Beckham, Jr. Vice President - Nuclear Hatch Project

June 13, 1994

Georgia Power

HL-4614

Docket No. 50-321

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

> Edwin I. Hatch Nuclear Plant - Unit 1 Licensee Event Report High Pressure Coolant Injection System Taken Out of Service for Repair

Gentlemen:

In accordance with the requirements of 10 CFR 50.73 (a)(2)(v), Georgia Power Company is submitting the enclosed Licensee Event Report (LER) concerning the removal of the High Pressure Coolant Injection system from service for repair. This event occurred at Plant Hatch, Unit 1.

Sincerely,

J. T. Beckham, Jr.

OCV/cr

Enclosure: LER 50-321/1994-006

cc: <u>Georgia Power Company</u> Mr. H. L. Sumner, General Manager - Nuclear Plant NORMS

U.S. Nuclear Regulatory Commission, Washington, D.C. Mr. K. Jabbour, Licensing Project Manager - Hatch

U.S. Nuclear Regulatory Commission, Region II Mr. S. D. Ebneter, Regional Administrator Mr. L. D. Wert, Senior Resident Inspector - Hatch

9406200342 940613 PDR ADDCK 05000321 S

IEZZ'

NRC *OR (5-9.)	M 366		27776-34784 4	U.S.NUCLEAR REGULATORY COMMISSION							EXPIRES: \$/31/95 ESTIMATED BURDEN PER RESPONSE TO COMPLY V INFORMATION COLLECTION REQUEST 50.0 HRS. COMMENTS REGARDING BURDEN ESTIMATE INFORMATION AND RECORDS MANAGEMENT (MNBB7714). U.S. NUCLEAR REGULATORY COL WASHINGTON, DC 20565-0001, AND TO THE PAI REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEI BUDGET, WASHINGTON, DC 20503												THIS VARD THE ANCH SION VORK									
FACILITY	NAME (1)	anorecano	coverant	NAMES VOLUME	stinat	n nigeletstelet	Silling and the	10.54	in Robinson	A distant part	Contraction and a	An la terra de la terra de		neterin.		DOCKET	NUI	MBE	R (2)	traine texts	1.1021.02	1000.000	101111	ļ	PAC	F (3)					
Edwin	ı I. F	late	ch Ì	Vuc	lear	Pl	ant - I	Unit	1								0	5	0	0	0	3	2	1	1	OF		6				
High	Presi		e C	001	ant I	nie	ection	Svs	ter	m Tal	cen Oi	it of !	Service	e for l	Re	epair	ters mataucoude	wr - 3	harri	-harne	hunnaust	NALAWARA S	Accession	kerrasti	he man d	has construe	opisanda					
EVE	T DATE	(5)	-	H		LE	ER NUMBE	R (6)	(Caning		REP	ORT DA	TE (7)	I	marma	- prun	0	THE	RF	ACILIT	IES IN	IOVE	VED	(8)	-	10121/074.22	canana					
MONTH	DAY	T YE	AR	YE	AR	T	SE OUENT)	AL E	1	REVISION	MONTH	DAY	YEAR	FACIL	ITY	NAME			1	DO	DOCKET NUMBER(S)											
		t				1	PRINTER			CALINOUS M.				1								0	15	10	0	01	1	3.5				
015	115	9	14	9	14	-1	0101	6		010	016	1 3	94	FACIL	ITY.	NAME						0	15	10	101	01	1	1				
OPERA	ING	-	taite	T	HIS REP	OR	T IS SUBN	AITTED	PU	RSUANT	TO THE RI	EQUIREI	MENTS OF	10 CFR	7.(Check (one or mor	e of	the	tollow	ing) (1	(1)	1 adam	1. V.	harddand	L.M.A.	and an a	<u>na heriya</u>				
MODE	(9)		1		20.40	2(b)					20.405(c)				50 73(a	(a)(2)(n)						73	71(b)								
POWER			1		20.40	6(a)	(1)(0				50.36(c)(1)		>	Ý.	50.73(a	a)(2)(v)						73	71(c)								
LEVEL (1)	1 1	0	10	-	20.40	6(a)	(1)(0)		-	_	50.36(c)(2)			-	50,73(a	a)(2)(v0)						OD	IER (Speci	fy in Ab	træct	below				
				-	20.40	5(a))	(1)(iii)				50.73(a)	2)(3)			-	50 73(a	6(2)(viu)(A)				k(a)(2)(viii)(A)				nu)(A)					RC Forn	365A	0
				-	20.40	5(a)	(1)(4)				50 73(a)	25(00)			+	60.73(a	(2)(2)(y)	(b)				-										
44410/001741000		******	10144046	Louis	-		1.11.11 1.11.11	-	(naren)	sandaran	LICENSE	ECONT	ACT FOR T	HISIEP	14.21	interesta	-17-17-7				enerie											
NAME									-		ALC: NO BUILT OF BUILT	C O OTT	10770711	TTNP Scholls	1141				TEL	EPHO	NE NI	UMBI	ER (ir	nclude	area	code)						
																			AR	EACO	DOE		-									
Steven	B. 1	ip	ps,	Nu	clear	S	afety a	And	C	ompli	ance N	Mana	ger						9	11	2	3	6	17	-	7 8	15	11				
C. Marriel Marriel and					a series and		COM	PLETE	ON	E LINE F	OR EACH O	OMPON	IENT FAILU	RE DES	CRI	BED IN	THIS REP	ORT	(13))	Carrier Carrier	POAS BARDY	Arantaante	formati	to an	by conduct	anager in a	unbarius				
CAUSE	SYST	EM	0	OMP	ONENT		MANUFAC	TURE	R	REPO TO I	RTABLE			CA	US	E S	YSTEM	C(OMP	ÓNEN	a.	MAN	NUFA	CTUR	ER	REPO	NPRD	ILÉ IS				
x	в	J		1	T	2	G[0]	8 (0		Y						1				1		1		LET							
							11	1									1		1	1			1									
				a de sea la se	no on many		SUPPLEN	ENTA	LRE	EPORT E	XPECTED	(14)						T	10110	EXP	ECTE	D		MO	TH]	DAY	Y	EAR				
YES	4 yous, co	mple	te EX	PEC	TED SU	BMIS	SSION DA	tE)				XNC								SUBA	AISSIC) (1						
ABSTRAC	(Lumit)	0 140	0 308	C 69.5. /	0. 8000	COX UN	nalely 15 s	incolas e	nac	e typewal	ten lines 111	R)	den skillt skin strant	APPROXIMATION AND	0.1121	Plinkstern	CONTRACTOR OF THE OWNER.	a the set	199.0	MACOWIE	100.5700.012	Contraction of the second	farren h	Acres 1000		ton descented	-	and some				

On 5/15/94 at 1640 EDT, Unit 1 was in the Run mode at a power level of 2436 CMWT (100 percent rated thermal power). At that time, the High Pressure Coolant Injection (HPCI) system was removed from service to repair flow controller 1E41-R612. During checks on 5/14/94, Operations personnel had discovered that the output signal from the controller was not upscale as expected. The controller output was adjusted on 5/15/94 and monitored for several hours to ensure it remained stable. Citing a recent instance of setpoint drift in the controller, Operations personnel declared the HPCI system inoperable on 5/15/94 at 1640 EDT to permit removal and examination of the controller. The controller was removed from service and failed components were identified and replaced. Surveillance testing was then performed successfully. At 1206 EDT on 5/17/94, the HPCI system was declared operable. On 5/20/94, questions arose as to the qualification of the replacement components installed on 5/17/94. HPCI was again declared inoperable and further testing was performed. By 5/22/94, an additional capacitor had been replaced and HPCI was returned to operable status at 1830 EDT.

The cause of this event was component failure. Two transistors and one capacitor within the flow control circuitry for the HPCI system failed, resulting in a slowly decreasing controller output signal.

The failed parts were replaced and the flow controller was satisfactorily tested in all modes.

LER)	INFORM COMME AND R NUCLEA 0001, AI OFFICE	ATIO NTS ECOI AR R ND TO OF M	N CO REGA RDS EGUL 2 THE IANAC	ATORY (BEMENT)	N RE URDE GEME COMN WORK	QUEST N ESTIMA NT BRAN ISSION N REDUCT BUDGET, V	50.0 H TE TO T VCH (M NASHIN ION PRO NASHIN	IRS THE II ANBB7 IGTON OJECT	FOR NFOR (714), (, DC (315) (, DC 2	WARD 44105 20555 20555 20503
DOCKET NUMBER (2)	LER NUMBER (6) PAGE									2) }
프랑지 위에 가지?	YEAR		SEC	UENTIAL YEAR		REVISIO	R			
0 5 0 0 0 3 2 1	9 4	-	0	0 6	-	0 0)	2	OF	6
	LER)	LER)	LER)	LER)	LER) Information of the conception of the control of the	LER) Comments Recarbing Burde AND RECORDS Comments Recarbing Burde AND RECORDS MANAGEME NUCLEAR REGULATORY COMM WOUT, AND TO THE PAPERWORK OFFICE OF MANAGEMENT AND TO THE PAPERWORK DOCKET NUMBER (2) LER NUMBER (6) YEAR SEQUENTIAL YEAR 0 5 0 0 3 2 1 9 4 0 0 6	LER)	LER)	LER)	LER) Important of the conception reduces of the open estimate to the information reduces to the information of the paper work reduction project (3150 open estimate to the information of the paper work reduction project (3150 open estimate (2) Docket number (2) Ler number (6) Page (5) 0 5 0 0 3 2 1 9 4 0 0 6 0 0 2 0

PLANT AND SYSTEM IDENTIFICATION

General Electric - Boiling Water Reactor Energy Industry Identification System codes are identified in the text as (EIIS Code XX).

DESCRIPTION OF EVENT

On 5/15/94 at 1640 EDT, Unit 1 was in the Run mode at a power level of 2436 CMWT (100 percent rated thermal power). At that time, the High Pressure Coolant Injection (HPCI, EIIS Code BJ) system was declared inoperable and removed from service to permit testing and repair of flow controller 1E41-R612. Operations personnel, during the shiftly performance of surveillance procedure 34SV-SUV-018-1S, "ECCS STATUS CHECK," on 5/14/94, had noted the output signal from the controller to be slightly below its expected value of greater than 100 percent. A deficiency card documenting this problem was written as required by plant administrative control procedures. However, the HPCI system was not declared inoperable at that time because the controller output signal is not part of the acceptance criteria for procedure 34SV-SUV-018-1S and the magnitude of the decrease was small.

Instrument and Control (I&C) personnel checked the flow controller on 5/15/94 per Maintenance Work Order (MWO) 1-94-2566 and found the output signal of the self-synchronizing control unit had drifted downward two to three milliamperes. I&C personnel monitored the control unit for about an hour and observed a further decrease of approximately one-half millivolt below the nominal output of 52 millivolts. After adjusting the output back to 52 millivolts per plant procedure 57IT-CAL-001-1S, "HPCI TURBINE CONTROL FT&C," they monitored the control unit output for four more hours and observed no further downward drift.

However, before I&C personnel completed work on the MWO, Operations personnel recalled another recent instance in which the same HPCI flow controller had experienced a similar downward drift in output signal (This was confirmed on MWO 1-94-2132, dated 4/7/94). Based on concerns raised by the apparent recurring nature of this problem, Operations personnel made the conservative decision to have the controller removed from service and tested more extensively in the I&C shop. Prior to removal of the flow controller, they declared the HPCI system inoperable and entered Limiting Condition for Operation (LCO) 1-94-162 as required by plant procedures and the Unit 1 Technical Specifications.

ICENSEE E	U.S.NUCLEAR REGULATORY COMMISSIC	ESTIN INFOI COMI AND NUCL 0001, OFFR	MATI RMA RE LEAF GE C	ED (TIO) (TIS) (COF (COF R) R R D TO () F M	BUR N CO REGA EGUI D THI IANA	APP DEN DLLEG ARDIN ML LATOI E PAR GEME	ROV EL PER CTIOI IG BI ANA(RY (PERV ENT /	ED O XPIRI REN RE URDE JEME JOMM VORM	MB NG ES 5/ SPON QUES NEST NT E AISSIO K RED BUDG	2.3150- 31/95 SE TO T SO TIMATE BRANCH N, WA UCTION ET, WA	COMPL 0 HRS 10 HRS 10 THE 4 (MNB) SHINGTO SHINGTO	Y W FI INFO 87714 DN D CT (31 DN DC	TH THIS DRWARD RMATION U S C 20555- 50-0104) 20503
FACILITY NAME (1)	DOCKET NUMBER (2)	DOCKET NUMBER (2) LER NUMBER (6) PAGE (3)	(3)										
		YEA	AR		SEC	YEAR	TIAL	[REV	ISION MBER		T	
Edwin I. Hatch Nuclear Plar	- Unit 1 0 5 0 0 0 3 2	1 9	4		0	0	6		0	0	3	OF	6

During bench testing, I&C personnel found that two transistors in the control amplifier and one capacitor in the self-synchronizing control unit within the HPCI system flow control circuitry had failed, resulting in the slowly decreasing controller output signal. Appropriate components in the flow controller were replaced per MWO 1-94-2566 by 5/17/94. Operations personnel then performed surveillance procedure 34SV-E41-002-1S, "HPCI PUMP OPERABILITY," and verified the controller operated properly in both the automatic and manual modes. At 1206 EDT on 5/17/94, Operations personnel declared the HPCI system operable and closed LCO 1-94-162.

On 5/20/94, questions arose regarding the safety classification/qualification of the replacement electronic components that were installed on 5/17/94. As a result, HPCI was declared inoperable and the original Technical Specification action statement was reentered (via LCO 1-94-175). That is, HPCI was considered to have been inoperable since 5/15/94. Additional testing was performed to verify the capability of the replacement components. During this testing, a bad capacitor was identified and replaced. However, the capacitor affected only the manual mode of HPCI operation. Thus, it was concluded that HPCI had been capable of automatically performing its intended safety function since 5/17/94. At 1830 EDT on 5/22/94, Operations personnel declared the HPCI system operable and closed LCO 1-94-175.

CAUSE OF EVENT

The cause of this event was component failure. Two transistors in the control amplifier and one capacitor in the self-synchronizing control unit within the HPCI system flow control circuitry failed resulting in a slowly decreasing controller output signal. No reason for these failures was apparent.

REPORTABILITY ANALYSIS AND SAFETY ASSESSMENT

This report is required by 10 CFR 50.73(a)(2)(v) because a single failure occurred which alone could have prevented the fulfillment of a safety function designed to mitigate the consequences of an accident. Specifically, the HPCI system, a single train Emergency Core Cooling System (ECCS), was declared inoperable and removed from service to permit repair of a faulty flow controller. With the output signal from the controller below its usual value of greater than 100 percent, it could not be assured that the HPCI system could have automatically reached its design reactor vessel injection flow rate of 4250 gallons per minute.

LICENSEE EVENT REPOR TEXT CONTINUATION	US NUCLEAR REGULATORY COMMISSION LICENSEE EVENT REPORT (LER) TEXT CONTINIJATION						EXPIRES 5/31/95 ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST 50.0 HRS FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB7714) US NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555- 0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150.0104) OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503											
FACILITY NAME (1)	DOCKET NUMBER (2)		and the second	LER	NUMBE	R (6)	to the local dist	and the second se	A. E. M. HICKING	(3)								
	집 이번 산 번 구지님	YEAR		SEC	SEQUENTIAL		REV	VISION MBER										
Edwin I. Hatch Nuclear Plant - Unit 1	0 5 0 0 3 2 1	9 4		0	0 0	5 -	0	0	14	OF	16							

The HPCI system is designed to replace lost reactor coolant inventory in cases where a small line break occurs which does not result in full or rapid depressurization of the reactor vessel. The HPCI system injects water to the reactor vessel at a flow rate of 4250 gallons per minute (gpm) over a range of reactor pressures from approximately 160 psig to rated pressure. The HPCI system automatically starts and injects cooling water whenever a reactor vessel water level decrease or a drywell pressure increase indicates the possibility of an abnormal loss of coolant inventory.

The backup for the HPCI system is the Automatic Depressurization System together with the Low Pressure Coolant Injection (LPCI, EIIS Code BO) system and the Core Spray (EIIS Code BM) system. If a small line break loss-of-coolant accident (LOCA) occurs and the HPCI system is not available, the Automatic Depressurization System will automatically depressurize the reactor pressure vessel to the suppression pool through safety relief valves, lowering pressure to the point where the LPCI and Core Spray systems can add cooling water to the vessel. Both the LPCI and Core Spray systems contain two fully independent and redundant, 100 percent capacity loops for a total of four low pressure injection loops.

In this event, the HPCI flow controller's output signal had decreased below its expected value of greater than 100 percent. Since the relationship between controller output and actual system performance is nonlinear, the architect/engineer (A/E) was consulted to analyze the effect of this condition on HPCI system performance. The A/E concluded that the system would have reached its rated flow of 4250 gpm and that any effect on the time response of the system would have been negligible. This conclusion was based, in part, on the fact that the drift in the control unit was of the same magnitude as the designed instrument calibration tolerances. Therefore, prior to its being removed from service for repair, the HPCI system was capable of performing its designed safety function.

In addition to the above considerations, the Unit 1 Final Safety Analysis Report conservatively assumes that the HPCI system will not be available to inject any water to the reactor vessel. The NRC-approved SAFER/GESTR LOCA analysis for Hatch Units 1 and 2 shows that no core damage will result from various LOCA events with the HPCI system out of service and only the Automatic Depressurization System and two of four low pressure injection loops available. The Automatic Depressurization System and all four low pressure injection loops were available during the time the HPCI system was out of service for repair. Therefore, for the reasons described in the above paragraphs, the plant remained well within the bounds of existing transient and accident analysis at all times during this event.

IC FORM 366A (5-92) LICENSEE EVENT F TEXT CONTIN	LICENSEE EVENT REPORT (LER) TEXT CONTINUATION							EXPIRES 43105 EXPIRES 43105 ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THE INFORMATION COLLECTION REQUEST 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNB87714). U.S. NUCLEAR REGULATORY COMMISSION WASHINGTON, DC 2055 0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104 OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503												
FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6) PAGE (3)																		
		YEAR		SEQUENTIAL			REVISION		T											
Edwin I. Hatch Nuclear Plant - Uni	t 1 0 5 0 0 0 3 2 1	9 4		0	06	-	010	15	OF	16										

Based on this analysis, it is concluded that this event did not adversely impact nuclear safety. This analysis is applicable to all power levels.

CORRECTIVE ACTIONS

The failed transistors and capacitor were replaced per Maintenance Work Order 1-94-2566. The flow controller was satisfactorily tested in both the automatic and manual modes per plant surveillance procedure 34SV-E41-002-1S and the HPCI system was returned to service on 5/17/94 at 1206 EDT.

LICENSEE EVENT REPORT	U.S. NUCLEAR REGULATORY COMMISSION LICENSEE EVENT REPORT (LER) TEXT CONTINUATION							APPROVED OMB NO. 3150-0104 EXPIRES: 5331/95 ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST. 500 HRG. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS. MANAGEMENT BRANCH (MNBB7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555- 0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.											
FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)							PAGE (3)										
		YEAR		SEQUENTIAL			NUME	BER											
Edwin I. Hatch Nuclear Plant - Unit 1	0 5 0 0 0 3 2 1	9 4		0	0 6		0	0	6	OF	6								
TEXT (If more space is required, use additional copies of NRC Form 366A)(1	7)	R	danse.	Anner	chevenchause	ardrament	demand	ere contra	na America	channed	mercent								

ADDITIONAL INFORMATION

- 1. Other Systems Affected: No systems other than those mentioned in this report were affected by this event.
- 2. Failed Component Identification:

Master Parts List Number: 1E41-R612 Type: Flow Controller Manufacturer: General Electric Model Number: 547-01 Manufacturer Code: G080 EIIS System Code: BJ EIIS Component Code: TC Root Cause Code: X Reportable to NPRDS: Yes

 Previous Similar Events: Events reported in the last two years in which the HPCI system was inoperable are described in the following Licensee Event Reports:

50-321/1993-015, dated 12/21/93 50-366/1992-028, dated 01/11/93 50-366/1993-008, dated 11/30/93 50-366/1994-002, dated 03/29/94

Corrective actions for those events would not have prevented this event because the causes and, hence, the corrective actions, were different. None of the previous events was caused by or resulted from a problem with the flow controller. Consequently, the corrective actions for those events could not have prevented a future failure of the flow controller.