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W. G. Hairston, III Senior Vice President Nuclear Operations

the southern electric system.

HL-50 0433I X7GJ17-H110

September 6, 1988

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

> PLANT HATCH - UNITS 1, 2 NRC DOCKETS 50-321, 50-366 OPERATING LICENSES DPR-57, NPF-5 NRC BULLETIN 85-03, SUPPLEMENT 1

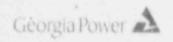
Gentlemen:

Supplement 1 to NRC Bulletin 85-03, "Motor-Operated Valve Common Mode Failures During Plant Transients Due to Improper Switch Settings," dated April 27, 1988, was issued to clarify: 1) which valves are to be included and 2) the meaning of the phrase ". inadvertent equipment operations (such as inadvertent valve closures or openings)...". as used in the original bulletin. Supplement 1 also required BWR licensees to review and document the design basis for the operation of safety-related motor- operated valves in the high-pressure coolant injection (HPCI) and reactor core isolation cooling (RCIC) systems, considering inadvertent recovery from such mispositionings. Supplement 1 requested a written report be submitted to the NRC within 30 days, providing the information stated above for any valves not already included in the IEB 85-03 program, including maximum opening and closing differential pressure. A schedule for completing the remaining portions of the program (items b through d of the original bulletin) and a final report were also requested.

By letter dated May 27, 1988, Georgia Power Company (GPC) responded to the NRC regarding the subject bulletin supplement. In that response, GPC committed to address inadvertent mispositioning of valves in the HPCI and RCIC systems, as evaluated by the BWR Owners Group (BWROG). The Reference 1 letter documented that a total of nine additional valves should be considered by utilities, such as Georgia Power Company, that participated in the BWROG 85-03 Committee. However, since Plant Hatch-specific calculations of maximum differential pressure for the

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8809140092 880906 PDR ADOCK 05900321 Q PNU



U.S. Nuclear Regulatory Commission September 6, 1988 Page Two

Supplement 1 valves were dependent on a generic methodology developed by the BWROG, Georgia Power Company deferred its response to the bulletin supplement until the BWROG input was received. The Reference 2 letter formally transmitted this input to GPC.

Enclosure 1 presents the information requested by Supplement 1 on the nine additional valves, including their applicability to the Plant Hatch Bulletin 85-03 program, and a proposed schedule for completion of the program. The maximum expected differential pressure calculations are given in Enclosure 2.

It should be noted that GPC has recently completed the testing on Unit 2 for the original Bulletin 85-03 scope, has started testing on Unit 1, and is in the process of scheduling a meeting with appropriate NRC staff personnel to discuss the GPC program.

If you have any questions in this regard, please contact this office at any time.

Sincerely,

W. G. Hairston, III Sr. Vice President Nuclear Operations

GKM/ac

Enclosures:

1. Response to NRC Bulletin 85-03, Supplement 1.

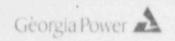
2. Differential Pressure Calculations for Supplement 1 Valves.

References:

 Letter, R. F. Janecok (BWROG) to J H. Sniezek (NRC), "IE Bulletin 85-03," dated March 28, 1988.

 Letter, W. G. Fiock (BWROG) to BWROG IEB 85-03 Committee Members, "BWROG Response to IEB 85-03, Supplement 1," dated August 4, 1988.

c: (See next page.)

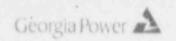


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c: Georgia Power Company Mr. H. C. Nix, General Manager - Hatch Mr. L. T. Gucwa, Manager Licensing and Engineering - Hatch GO-NORMS

U.S. Nuclear Regulatory Commission, Washington, D.C. Mr. L. P. Crocker, Licensing Project Hanager - Hatch

U.S. Nuclear Regulatory Commission, Region II Dr. J. N. Grace, Regional Administrator Mr. J. E. Menning, Senior Resident Inspector - Hatch



ENCLOSURE 1

PLANT HATCH - UNITS 1, 2 NRC DOCKETS 50-321, 50-366 OPERATING LICENSES DPR-57, NPF-5 RESPONSE TO NRC BULLETIH 85-03, SUPPLEMENT 1

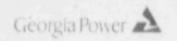
NRC Bulletin 85-03, Supplement 1, requested &WR owners to consider the inadvertent mispositioning of valves in the high-pressure coclant injection (HPCI) and reactor core isolation cooling (RCIC) systems in determining valve operator setpoints. The BWROG report, Supplement 1 to NEDC-31322, (Reference 1) reviewed and documented the design basis for valve operation and the methodology for determining expected differential pressure. This analysis fulfills item "a" of the bulletin supplement on a generic basis for the nine selected safety-related valves. The valves considered for Plant Hatch are discussed below. Note that two of the nine valves discussed in Reference 1 are in the high-pressure core spray system (HPCS). These two valves will not be considered since Plant Hatch is a BWR/4 class of plant and does not have a HPCS system. Also, the HPCI and RCIC turbine exhaust valves are not motor-operated valves and, therefore, will not be considered.

HPCI System Condensate Storage Tank (CST) Suction Valves

HPCI system CST suction valve F004 is normally open and has an active safety function to close during abnormal events where system suction is transferred from the CST to the suppression pool. The maximum differential pressure (dP) for this event was used to determine the proper valve and operator setpoints for the original bulletin. When considering valve mispositioning, the maximum opening dP must also be considered in determining the valve/operator setpoints. The maximum expected dP is still low (about 35 psid) and only about 5 psi higher than that calculated for the original bulletin. Opening or closing against the maximum expected dP is well within the capabilities of the motor, operator, and valve. The Unit 1 and Unit 2 CST suction valves were already included in Georgia Power Company's (GPC) 85-03 program because of its safety action to close. The program calculations and acceptance values will be modified to include consideration of mispositioning when satisfying items b through d of the original bulletin and bulletin supplement.

RCIC System CST Suction Valves

RCIC system CST suction valve F010 is similar in design and function to the HPCI system CST suction valve discussed above. The maximum expected dP is only slightly higher in the opening direction. GPC's 85-03 program calculations and acceptance values will be modified to include consideration of valve mispositioning when satisfying items b through d of the bulletin.



ENCLOSURE 1 (Continued)

RESPONSE TO NRC BULLETIN 85-03, SUPPLEMENT 1

HPCI System Injection Valve Test Valve

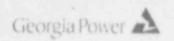
HPCI system injection valve test valve FOO7 is normally open and is only closed during system maintenance or to perform operability testing of HPCI injection valve FOO6. Since the valve had no safety function (i.e., it is simply required to remain open during HPCI operation), it was not included in GPC's original program. If mispositioning is considered, the maximum dP is virtually identical to that of HPCI injection valve FOO6. The Unit 1 and Unit 2 injection valve test valves will be added to GPC's Bulletin 85-03 program. However, hooking up the Limitorque diagnatic equipment to the operator may be difficult because of physical limitations (i.e., no accessibility). Regardless of whether or not the equipment can be used to test the operator, GPC will calculate the valve operator setpoints consistent with the maximum dP due to mispositioning. These setpoints should be very similar to or bounded by those for the HPCI injection valve. Testing at the motor control center (MCC) will be performed to determine the as-found motor running amps and switch settings. These parameters will be compared to those determined during testing of similar valves (e.g., HPCI injection valve FOO6). A review of the motor, operator, and valve capabilities indicates MOV FOO7 will be more than adequate to open against the maximum expected dP. (The MOV appears to have been originally sized to open and close against well over 1000 psid.) Only the valve opening is considered in the reposition action per the bulletin supplement, and the torque switches are jumpered out in the open direction of valve travel. However, since the valve is seldom used. GPC reserves the right to remove power to the operator and tag out the valve.

RCIC System Injection Valve Test Valve

RCIC system injection valve test valve FO12 is similar in design and function to HPCI valve FO07 discussed above. GPC has calculated the maximum dP, considering valve mispositioning, and intends to include the Unit 1 and Unit 2 valves in the Bulletin 85-03 program. Also, if the motor, valve, or operator is undersized, the power to the operator may be removed and the valve tagged out.

RCIC Trip and Throttle Valve

As stated in Reference 1, the function and active safety action of the RCIC trip and throttle valve is to trip closed when required to protect the pump and turbine. Closure of this valve is spring actuated. The RCIC system will not be able to recover immediately from an inadvertent closure of this valve, since the function of the valve is



ENCLOSURE (Continued)

RESPONSE TO NRC BULLETIN 85-03, SUPPLEMENT 1

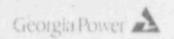
to shut off the steam supply to the turbine. If the valve trips closed, the dP on opening will be negligible, because prior to resetting the RCIC turbine trip and throttle valve, RCIC system steam admission valve FO45 located upstream of the trip and throttle valve would first be closed. This action resets the RCIC system startup logic (i.e., the ramp generator for the RCIC turbine). The RCIC turbine trip and throttle valve above the seat drain upstream of the valve will vent steam trapped between the closed steam admission valve and the trip and throttle valve to the turbine exhaust line drain pot. This will reduce the dP across the turbine trip and throttle valve to a negligible value prior to valve opening. Therefore, GPC is not planning to include the trip and throttle valve in its Bulletin 85-03 program.

Program Schedule

As stated in the cover letter, GPC has almost completed the testing on Unit 2 for the original Bulletin 85-03 scope. The zero dP testing was completed during the last outage, and selected valves have been tested during system operability tests (at high dP) subsequent to that outage. Testing has started on Unit 1 and will be performed during the upcoming outage scheduled to begin on September 28, 1988. The additional valves discussed above, which are being added to GPC's Bulletin 85-03 program because of the bulletin supplement, will be included in the testing on Unit 1 this fall. The Unit 2 valves added to the program because of the bulletin supplement will be tested during the next Unit 2 maintenance/refueling outage currently scheduled for Spring 1989.

REFERENCE:

 Supplement 1 to NEDC-31322, "BWR Owners' Group Report on the Operational Design Basis of Selected Safety-Related Motor-Operated Valves," dated July, 1988.



ENCLOSURE 2

PLANT HATCH - UNITS 1, 2

NRC DOCKETS 50-321, 50-366

OPERATING LICENSES DPR-57, NPF-5

DIFFERENTIAL PRESSURE CALCULATIONS FOR SUPPLEMENT 1 VALVES

The Nuclear Regulatory Commission (NRC) issued Supplement 1 to IE3 85-03 on April 27, 1986. The supplement requested BWR owners to consider inadvertent valve mispositioning when determining maximum dP. While BWR high-pressure reactor inventory makeup systems are not required to regain operability following an operator error resulting in inadvertent valve mispositioning, the BWROG agreed to evaluate selected valves, considering inadvertent valve mispositioning. The objective of this calculation is to determine the maximum dP in response to that commitment.

	UNIT I HPCI	E.I. MATCH MULLEM PLANT UNIT I UNIT I MFCI MOTOR OFERATED VALVE	REVIEWED BY: Control	Media	1			9.0	DATE 127/5/94 DATE 12/45/94
	STATEMENT IN	A TREADURE UNIVERSALITY	CALLULATION NO. SMT-DO-012	SUMMARY TABLE	12/17/86			38	SMET 4 0F 6/ .
	1641-F001	VALVE DESCRIPTION TURBINE STEAM SUPPLY VALVE	VALVE FUNCTION HPC: TURBINE STEAM ADMISSION VALVE	SAFETY	DP CALCULATION FORMULA DP-PRSS	SALINUM DP UPSTREAM	NA DP ON DPEN	2P (PS10) 1080	SAFETY DW OPEN
	1E41-F002	STEAM SUPPLY INBOARD ISOL VALVE HPCI STEAM LINE ISOLATION	HPCI STEAM LINE ISOLATION VALVE	165	DP+PRSS	UPSTREAM	CLOSE	1080	35010
	1641-5003	STEAM SUPPLY QUIBO ISOL VALVE	MPCI STEAM LINE ISOLATION VALVE	YES	DP=PRSS	UPSTREAK	35010	1080	0.08E A.C.
*	1E41-F004	PUMP SUCT FRM COND STOR TANK	HPCI CST SUCTION VALVE	YES	DP=PELD+PV+PVEL1	UPSTREAM	CLOSE	29.554	35010
	1E41-F006	HPCI PUMP INBO DISCH VALVE	MPCI IMJECTION/ISOLATION VALVE	YES	DP*FSOH-P1SO-PEL	UPSTREAM	Drew	433.51	OPEN/CLOSE
	1E41-F006	HPCI PUMP INBO DISCH VALVE	HPC1 INJECTION/ISOLATION VALVE	YES	DP «PSOH-P1SO-PEL *PVEL2	UPSTREAM	0.05€	441.586	OPEN/CLOSE
*	1E41-F007	HPF C PYMP DUTBD DISCH VALVE	HPC1 INJECTION VALVE TEST VALVE	Ø	ND SAFETY ACTION	8/8	N/A	M/A	NONE /2
	8003-1937	TEST VEHISS WALVE TO COMD STOR	HPCI CST TEST RETURN VALVE	9	NO SAFETY ACTION	R/A	M/A	M/A	NOME BUTTON
	1104-1431	REDUNDANT SHUTGEF #/F008	NPC1 CST TEST RETURN VALVE	8	ND SAFETY ACTION	N/A	M/A	N/A	KOK
	1641-7012	PMP MIN FLO BYP TO SUPP POOL	HPCI PUMP MIN FLO BYP ISOL VALVE	334	DP*PSQH+PELM	SPSTREAM	N340	13:9.07	35013/W360
	1641-5012	PMP MIN FLO BYP TO SUPP POOL	HPC1 PUMP MIN FLO BYP 150L VALVE	YES	DP-PMF *PELM*PVEL3	UPSTREAM	CLOSE	1324.611	OPEN/CLOSE
	1E41-F041	PMP SUCT FROM SUPP POOL	HPCI SUPP POOL SUCT ISOL VALVE	YES	MP*PRV-PELS	DOWNSTREAM	DPEN	45.72	0PEM/C1.0SE
	1641-4941	PMP SUCT FROM SUPP POOL	HPCI SUPP POOL SUCT ISOL VALVE	YES	DP010C+P10M1	UPSTREAM	CLOSE	35.93	OPEN/CLOSE
	1641-6042	PMP SUCT FROM SUPP POOL	MPCI SUPP POOL SUCY ISOL VALVE	res	DP*PRV-PELS	DOWNSTREAM	N3-00	95.72	OPEN/CLOSE
-	1641-5042	PMP SUCT FROY, SUFP POOL	HPCI SUPP POOL SUCT ISOL VALVE	YES	DP+PLOC+PLOM1	UPSTREAM	35010	15.93	35013/K340
	9201-1831	COOLING WATER SUPPLY VALVE	HPC1 TURBINE ACCES COGLING NTR VLV	YES	DP+PC+PLON2	UPSTREAM	ОРЕМ	36.94	OPEN/CLOSE
	650 1-11-31	COOLING MATER SUPPLY VALVE	HPC1 TURBINE ACCES COOLING WIR VLV	YES	DP+PC+PL3M2+PVEL4	UPSTREAM	CLOSE	37.857	OPEN/CLOSE
	1E41-F104	GATE VALVE 2 IN MO	MPCI VAC BREAKER LINE ISOL VALVE	YES	DP-FC+FAIN	UPSTREAM	CLOSE	30.5	25010
T	IE41-F111	GATE VALVE 2 IN MD	APCT VAC BREAKER LINE ISOL VALVE	YES	DP-PC-PAIN A COL	UPSTREAM	CLUSE	30.5	0.056



E.I. Hatch Nuclear Plant Unit 1	Prepared Con	88.01.9
Unit 1 HPCI Motor Operated Valve	Reviewed By	Date 3.16.88
Differential Pressure Calculation	SNH-86-015 Supplement 1	Sheet Z of 8

CRITERIA

The criteria, assumptions and formulas given in the General Electric "BWR Owner's Group Report on Operational Design Basis of Selected Safety-Related Motor-Operated Valves, "DRF-E12-00100-75 Supplement 1, are assumed to be correct.

ASSUMPTIONS

1) The elevation of 1E41F004 is conservatively assumed to be 90'- 1".

MPL NUMBER	DESCRIPTION	SAFETY	ACTION	MAX DP
E41F004	CST SUCTION	CLOSE	OPEN	34.37
E41F007	INJECTION VALVE TEST		OPEN	433.51

	PESION CAL	DESIGN CALCULATIONS E.1. HATCH NUCLEAR PLANT URIT 1	PREPARED BY:	PREPARED BY: C ASTOR	My man		05	SOUTHERN COMPANY SERVICES	SERVICE 09/ 2VB	
	DIFFERENTI	UNIT I RUIC MOTOR OPERATED VALVE DIFFERENTIAL PRESSURE CALCULATION	REVIEWED BY:	4.0 CK	Den			DATE	08/12/180	
			i i	3	09/21/86			100	255	
	MPL NUMBER	VALVE DESCRIPTION RCIC STEAM IMBOARD ISOL VALVE	VALVE FUNCTION RCIC STEAM LINE ISOLATION WALVE	SAFETY ACT CLOSE	DP - ALCULATION FORMULA DP - 4858	THE DP ON	MALINUM DP UPSTREAM	DP (PSID) 1080	SAFETY	
	1E31-F008	RCIC STEAM DUTBOARD 150L VLV	ACIC STEAM LINE ISOLATION VALVE	35010	DF-PRSS	CLOSE	UPSTREAR	1080	YES	<
*	1651-6010	PUMP SUCT FRM COND STG TMK	RCIC CST SUCTION ISOLATION VALVE	35013	D: *PELD*PV*PVEL1	C1.05E	UPSTREAM	29.406	YES	CCL BEEN
*	IE51-F012	RCIC PUMP DUTBOARD DISCH VLV	RCIC INJECTION VALVE TEST VALVE	NDNE	RU SAFETY ACTION	8/8	M/A	M/A	2	
	1651-F013	RCIC PUMP INBOARD DISCH YLV	RCIC INJECTION VALVE	OPEN/CLOSE	DP*PRSS+PEL	350 Tu/ho.	DOWNSTREAM	1115.612	TES	
	1E31-F019	TEST BYPASS 10 COND ST6 TANK	RCIC MINIMUM FLOW BYPASS ISOL VALVE	OPEN/CLOSE	DP*PSDH+PELN	м340	UPSTREAM	1305.687	YES	
	1631-5019	TEST BYPASS TO COND ST6 TANK	RCIC MINIMUM FLOW BYPASS ISOL VALVE	OPEN/CLOSE	DP*PMF+PELM*PVEL3	C1.0SE	UPSTREAM	1307.1232	155	
	1E51-F022	TEST BYPASS TO COND ST6 TAMK	RCIC CST TEST RETURN VALVE	NONE	NO SAFETY ACTION	M/A	R/A	M/A	2	
	1231-4029	RCIC PMP SUCT VLV FRM SUP FOOL	RCIC SUPP POOL SUCTION ISOL VALVE	OPEN/CLOSE	DP*PRV-PELS	M340	DOWNSTREAM	95.367	YES	
	1251-4029	RCIC PMP SUCT VLV FRM SUP POOL	RCIC SUPP POOL SUCTION ISOL VALVE	OPEN/CLOSE	DP+PLOC+PLON1	CLOSE	UPSTREAM	36.3	YES	
	1ES1-F031	RCIC PMP SUCT VLV FAM SUP POOL	RCIC SUPP POOL SUCTION ISOL VALVE	OPEN/CLOSE	DP*PRV-PELS	мэно	DOWNSTREAM	95.367	¥E.	
	1E51-F031	RCIC PMP SUCT VLV FRM SUP POOL	RCIC SUPP POOL SUCTION ISOL VALVE	OPEN/CLOSE	DP+PLDC+PLDM1	25013	UPSTREAM	36.1	YES	
	1E51-F045	TURBINE STEAM SUPPLY VALVE	RCIC STEAM ADMISSION VALVE	OPEN/CLOSE	DP-PRSS	OPEN/CLOSE	UPSTREAM	1080	YES	
	1E51-F046	CORLING MATER SUPPLY VALVE	RCIC TURBINE ACCESSORY COOL NTR VALVE	OPEN/CLOSE	DP+F501+FELC	прем	UPSTREAM	288.179	YES	
	1E51-F046	COOLING WATER SUPPLY VALVE	RCIC TURBINE ACCESSORY COOL WTR VALVE	OPEN/CLOSE	DP+PLDC+PLDN2+PVEL4	35013	UPSTREAM	37.065	YES	
	1651-F104	SATE VALVE 1.5 IN NO	RCIC VACUUM BREAKER LINE ISOL VALVE	35010	DP*PC+PAIM	35010	UPSTREAM	30.5	YES	
	1ESI-F105	GATE VALVE 2 IN NO	RCIC VACUUM BREAKER LIME ISOL VALVE	CLOSE	DP-PC-PAIN	CLOSE	UPSTREAM	30.5	YES	
					3					

^{*} SEE SUFFICIENT 1 OF THIS CALCULATION FOR DIFFERENTIAL PRESSURE DUE TO IMADVENIENT VALVE POSITIONING. | 810-88

Design Calculations

Southern Company Services 🛦

Project E.I. Hatch Nuclear Plant Unit 1	Prepared B	8.16.88
Subject/Title Unit 1 RCIC Motor Operated Valve	Reviewed By B/Harkins	9-16-38
Differential Pressure Calculation	SNH-86-016 Supplement 1	Sheet or 9

CRITERIA

The criteria, assumptions and formulas given in the General Electric "BWR Owner's Group Report on Operational Design Basis of Selected Safety-Related Motor-Operated Valves, "DRF-E12-00100-75 Supplement 1, are assumed to be correct.

ASSUMPTIONS

1) The elevation of 1E51F010 is conservatively assumed to be 89' - 8 7/8".

MPL NUMBER	DESCRIPTION	SAFETY	REPOSITION	MAX DP
E51F010 E51F012 E51F524	CST SUCTION INJECTION VALVE TEST TRIP AND THROTTLE	CLOSE NONE CLOSE	OPEN OPEN	34.52 390.66 NEGLIGIBLE

	RESIGN CALCULATIONS	CULATIONS			1			SOUTH - COMPANY SERVICE	SERVICES
	E.1. HATCH	HATCH MUCLEAR PLANT UNIT 2 2 MPCT MOTOR DESERTED VALVE		PREPARED 87;	A Samon			DATE	12/18/86
	DIFFERENTI	DIFFERENTIAL PRESSURE CALCULATION	3 00	CALCULATION NUMBER SUMMARY TABLE	3			SHEET 6	0.5%
	2E41-F001	VALVE DESCRIPTION TURBINE STEAM SUPPLY VALVE	VALVE FUNCTION HPC: TURBINE STEAM ADMISSION VALVE	SAFETY	DP CALCULATION FORMULA DP-PRSS	NACINUM DP DPEN	NATINUM DP. UPSTREAM	1090	SHELLY
	2E41-F002	STEAM SUPPLY INBOARD ISOL WALVE	STEAM SUPPLY INBOARD ISOL VALVE MPCI STEAM LINE ISOLATION VALVE	35010	DF-PRSS	CLOSE	UPSTREAM	1040	YES D. WOO
	2641-6003	STEAM SUPPLY DUTBD 150L VALVE	MPCI STEAM LINE ISOLATION VALVE	35013	DP+PRSS	25013	UPSTREAM	1090	VES 2
*	2641-5004	PUMP SUCT FAM COND STOR TAME	MPC1 CST SUCTION VALVE	CLUSE	DF+PELD+PV+PVEL1	CLOSE	UPSTREAM	29.814	KES
	2541-F006	HPCI PUMP INEO UTSCH VALVE	APC1 INJECTION/ISOLATION VALVE	35013/W340	DF-PSDH-P1SD-PEL	N340	UPSTREAM	418.73	1ES
	2£41-F006	HPCI PUMP INBO DISCH VALVE	HPC1 INJECTION/150LATION VALVE	350TD/K340	DP-PSOH-P1SD-PEL+PVEL2	23013	UPSTREAM	426.893	YES 2
*	284: - 4007	HPCI PUMP DUTED DISCH VALVE	HPC1 INJECTION VALVE TEST VALVE	KOK	NO SAFETY ACTION	8/8	K/A	8/8	3 2 2
	2E41-F00B	TEST BYPASS VALVE TO COND STOR	HPCI CST TEST RETURN VALVE	KOK	NO SAFETY ACTION	M/A	8/8	M/A	2
	2641-6011	REDUNDANT SKUTOFF W/F008	MPCI CST TEST RETURN VALVE	NONE	NO SAFETY ACTION	8/8	N/A	M/A	8
	2641-F012	PMP NIN FLO BYP TO SUPP POOL	HPC1 PUMP MIN FLO BYP ISO, VALVE	OPEN/CLOSE	DP*PSDH*PELM	N340	UPSTREAM	1309.28	155
	2641-F012	PRP MIN FLO BYP TO SUPP POOL	HPC1 PUMP NIN FLO BYP 150L VALVE	DPEN/CLOSE	DP-PM -PELM-PVEL3	55013	UPSTREAM	1315.305	YES
	2E41-FINI	PMP SUCT FROM SUPP POOL	HPC1 SUPP POOL SUCT 150L VALVE	OPEN/CLOSE	DP=PRV-PELS	OPEN	DOWNSZZAN	97.12	¥ES
	2641-F041	PMP SUCT FROM SUPP POOL	HPC1 SUPP PEGL SUCT 150L VALVE	DPEN/CLOSE	DF+PLOC+PLOM1	5010	UPSTREAM	37.06	165
	2641-6042	PAR SUCT FROM SUPP POOL	MPC1 EUPP POOL SUCT 150L VALVE	35073/W340	DP+PRV-PELS	мы	DOWNSTREAM	97.12	YES
	2841-6042	THE SUCT FROM SUPP POOL	APCI SUPP POOL SUCT ISOL VALVE	35013/K349	DP-21.0C+P1.0A1	CL.05€	UPSTREAM	37.06	TES .
	2641-6059	COOLING MATER SUPPLY UMLVE	HPC1 TURBINE ACCES COOLING WTR VLV	350,121,N340	DP+PC+PLDR2	83.0	UPSTREAM	37.07	165
	2641-6059	COOLING MATER SUPPLY URLUE	HPCI TURBINE ACCES COOLING WIR VLV	DPER/CLOSE	\$13A4-24014-34-40	CLOSE	UPSTREAM	37.447	rES
	2541-5104	GATE VALVE 2 IN MD	HPC1 VAC BREAKER LINE ISOL VALVE	25013	DP-PC-PAIN	CLOSE	UPSTREAM	31.6	1ES
	341-4111	GATE MALVE 2 IN MD	HPCI VAC BREAKER LINE ISOL VALVE	35013	DF-FC-FAIN A	CLOSE	UFSTREAM	31.6	ifs
	. 866 800	PPIGMENT 1 OF THIS CALCULATION TO	* SEE BUPPLEMENT 1 OF THIS CALCULATION FOR DIFFERENTIAL PRESSURS OUR TO IMADVERIENT WA	ERIEST VALVE	POSITIONING.				

E.I. Hatch Nuclear Plant Unit 2	Prepared B	19.16.88
Unit 2 HPCI Motor Operated Valve	Reviewed By 1/2 /plain	9.16. 33
Differential Pressure Calculation	SNH-86-017 Supplement 1	2 01 8

CRITERIA

The criteria, assumptions and formulas given in the General Electric "BWR Owner's Group Report on Operational Design Basis of Selected Safety-Related Motor-Operated Valves, "DRF-E12-00100-75 Supplement 1, are assumed to be correct.

ASSUMPTIONS

The elevation of 2E41FQC4 is conservatively assumed to be 92' - 8".

MPL NUMBER	DESCRIPT:ON	SAFETY	ACTION	MAX DP
2E41F004 2E41F007	CST SUCTION	CLOSE	OPEN OPEN	33.47

DESIGN CALCULATIONS E.1. HATCH NUCLEAR UNIT 2 RCIC NOTOR D DIFFERENTIAL PRESSU	DESIGN CALCULATIONS E.T. MATCH NUCLEAR PLANT UNIT 2 UNIT 2 BCTC NOTOR DPERATED VALVE DIFFERENTIAL PRESSURE CALCULATION	PREPARE REVIEWE CALCREA SU	PREPARED BY: C SOLE SELECTED BY: CALCULATION NUMBER 5381-50-518 SURMARY 1881E 09/21/8	18 1/4 Sin		88	SOUTHERN COMPANY SERVICE DATE OFFICE DATE OFFICE SMEET 4 OF 52	254/105 09/2//8 09/2//8	
MPL NUMBER 22:51-F007	WELVE DESCRIPTION RECIE STEAM INSOARD ISOL WALVE	WALVE FUNCTION RCIC STEAM LINE ISQUATION WALVE	SHEETY	DP CALCULATION FORMULA DP-PRSS	SALINAL RE CLOSE	DESTREAM	1090	SHELL	-
2651-f 608	RCIC STEAM OUTBOARD ISOL WLV	RCIC STEAM LINE ISOLATION VALVE	35013	26+1655	CLDSE	UPSTREAM	1990	YES	4
2551-6010	PUMP SUCT FRM COND STB TAX	RCIC CST SUCTION ISOLATION VALVE	25013	SP-PELD-PV-PVEL1	CLOSE	UPSTREAM	29.621.	KES .	3!
2531-4012	RCIC PUMP GUTBOARD BISCH VLV	RCIC INJECTION VALVE TEST VALVE	NOKE	NO SAFETY ACTION	8/8	8/8	8/8	2	
2551-F013	RCIC PUMP IN MARIN DISCH MLV	RCIC INJECTION VALVE	350.12\W340	DP+PRSS+PEL	0PEN/0.05E	DOWNSTREAM	1125.612	MES.	
2531-6019	TEST BYR. VS 10 COAD STB TANK	ACIC MINIMUM FLOW BYPASS ISOL VALVE	DPEN/CLOSE	DP-PSGH-PELM	DPER	UPSTREAM	1330.173	TES	
X51-f019	TEST BYPASS 20 COND STG TAME	RCIC MINIMUM FLOW BYPASS ISOL VALVE	DPEN/CLDSE	DP+PNE+PELN+PVEL3	25013	UPSTREAM	1333.883641	MES.	
2551-4022	TEST BYPASS TO COND STB TAME	RCIC CST TEST RETURN VALVE	NOK	NO SAFETY ACTION	W/W	***	#/#	¥	
3E51-F029	RCIC PRP SUCT NLV FRM SUP POOL	RCIC SUPP POOL SUCTION ISOL VALVE	OPEN/CLOSE	DP+PRU-PELS	NEW	DOWNTREAM	47.6	KES	
2ES1-F029	RCIC PRP SUCT NLV FRM SUP POOL	RCIC SUPP POOL SUCTION ISOL VALVE	0PEN/CL0SE	DP+PL0C+PL0M1	25070	UPSTREAM	17.317	E	
2551-6031	RCIC PRP SUCT VLV FRM SUP POOL	ACIC SUPP POOL SUCTION ISDL VALVE	OPEN/CLOSE	DP-PRV-PELS	100	DOWNSTREAM	97.6	165	
251-6031	RCIC PRP SUCT NLV FRM SUP POOL	HCIC SUPP POOL SUCTION ISOL VALVE	DYEN/CLOSE	DP+PLDC+PLDM1	25013	UPSTREAM	37.317	KE	
2531-F045	TURBINE STEAM SUPPLY VALVE	RCIC STEAN ADMISSION VALVE	DPEN/CLOSE	254+40	350 D/8340	UPSTREAM	1000	S	
2651-6046	COOLING MATER SUPPLY VALVE	RCIC TURBINE ACCESSORY COOL WTR VALVE	0PEN/CL0SE	3734-1854-45	1540	UPSTREAM	291.974	ES.	
2551-5046	COOLING SATER SUPPLY VALVE	RCIC TURBINE ACCESSORY COOL WTR VALVE	0PEN/CL0SE	\$P+PLBC+PLBR2+PVEL4	25013	UPSTREAM	37.381729	165	
251-1104	BATE VALVE 1.5 IN NO	RCIC VACUUM BREAKER LINE 1501 VALVE	35013	DP-PC-PATH	25072	UPSTREAM	31.4	163	
2ES1-F105	SATE VALVE 2 IN NO	RCIC VACUUM BREAKER LIME ISOL VALVE	25010	DP-PC-PATR	DIPE	UPSTREAM	31.4	MS.	
2531-4119	LSTB VALVE	RCIC STEAM ADMISSION BYPASS VALVE	2010	BANKS A CCA	CLOSE	UPSTREAM	0601	KES	

SEE SUPPLEMENT 1 OF THIS CALCULATION FOR DIFFERENTIAL PRESSURE BUT TO IMADVERTENT VALVE POSITIONING

E.I. Hatch Nuclear Plant Unit 2	Prepared By Com	8.16.88
Unit 2 RCIC Motor Operated Valve	Reviewed By B Hapkins	9-16-88
Differential Pressure Calculation	SNH-84-018 Supplement 1	Sneet 2 or 9

CRITERIA

The criteria, assumptions and formulas given in the General Electric "BWR Owner's Group Report on Operational Design Basis of Selected Safety-Related Motor-Operated Valves, "DRF-E12-00100-75 Supplement 1, are assumed to be correct.

MPL NUMBER	VALVE DESCRIPTION	SAFETY	REPOSITION	MAX DP
2651F010	CST SUCTION	CLOSE	OPEN	34.62
2651F012	INJECTION VALVE TEST	NONE	OPEN	409.93
2651F524	TRIP AND THROTTLE	CLOSE	OPEN	NEGLIGIBLE