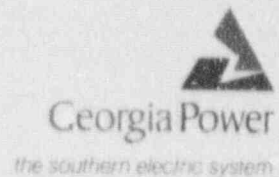


Georgia Power Company  
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Telephone 205 877-7122

C. K. McCoy  
Vice President, Nuclear  
Vogtle Project



February 18, 1993

ELV-05192  
2936

Docket Nos. 50-424  
50-425

TAC M84932  
M84933

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

VOGTLE ELECTRIC GENERATING PLANT  
OPERABILITY OF ALTERNATE MINIFLOW PATHS  
FOR HIGH HEAD SAFETY INJECTION

Gentlemen:

By letter dated November 18, 1992, the NRC requested that Georgia Power Company (GPC) meet with its staff to provide information concerning the operability of the high head safety injection system (HHSI) alternate miniflow (AMF) relief valves. The concerns of the staff were based on the circumstances of a potential loss of HHSI at the Shearon Harris Nuclear Power Plant (SHNPP) reported in Licensee Event Report (LER) 50-400/91-008 on May 3, 1991, and the supplement to the LER dated October 13, 1992. The purpose of the meeting was to discuss similarities of the Vogtle Electric Generating Plant (VEGP) and SHNPP designs to determine if a similar problem could exist at VEGP. The requested meeting was held on January 7, 1993, and attached to this letter are copies of the material discussed relative to VEGP. Georgia Power Company was represented at the meeting by personnel from Southern Nuclear Operating Company (SNC). Representatives from Duquesne Light Company, Northeast Nuclear Energy Company, Texas Utilities Electric Company, and Westinghouse were also present and made presentations for plants that have AMF designs that are similar to the VEGP design.

The causes of the AMF valve failures at SHNPP were determined to be due to water hammer or valve chatter. A comparison of the VEGP design to the SHNPP design indicated significant differences in the parameters affecting valve chatter such that a similar problem is not expected for VEGP. Major differences in the design include a much lower capacity relief valve at VEGP where calculations show that the inlet pressure will not drop below the reseal pressure of the valve when the valve opens; thus the valve will not be subjected to a cycling demand. This calculation for VEGP was compared by analysis with other similar

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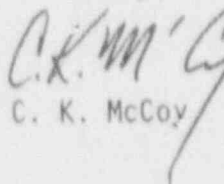
plants, and the conclusions confirmed by testing at Comanche Peak. As a result of the LER from SHNPP, the procedures to assure that the lines to the AMF relief valves are filled have been improved and provide increased assurance that water hammer will not affect the valves.

A review of past operating experience with these valves at VEGP indicated that the setpoints had experienced drift. Although no instance was identified where the drift would have prevented a valve from performing its intended safety function, Georgia Power Company will verify the setpoint of one of the valves at each refueling outage. If the valve setpoint has drifted beyond the allowed tolerance, the other valve will also be checked. This increase in the frequency of setpoint verification for this category of valves will continue until the increased testing frequency is no longer necessary.

It should be noted that the VEGP design includes an intermediate head safety injection system; consequently, a failure of the AMF relief valves would not result in a core damage frequency of the magnitude given in your letter of November 18, 1992, for SHNPP.

As discussed at the January 7, 1993 meeting and outlined above, GPC considers that the AMF relief valves are operable and capable of performing their intended safety function.

Sincerely,

  
C. K. McCoy

CKM/HWM/gmb

Attachment

cc: Georgia Power Company  
W. B. Shipman, General Manager  
M. Sheibani, Plant Engineer Supervisor  
NORMS

U. S. Nuclear Regulatory Commission, Washington, D. C.  
D. S. Hood, Licensing Project Manager

U. S. Nuclear Regulatory Commission, Region II  
S. D. Ebnetter, Regional Administrator  
J. R. Bonser, Senior Resident Inspector, Vogtle

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VOGTLE ELECTRIC GENERATING PLANT

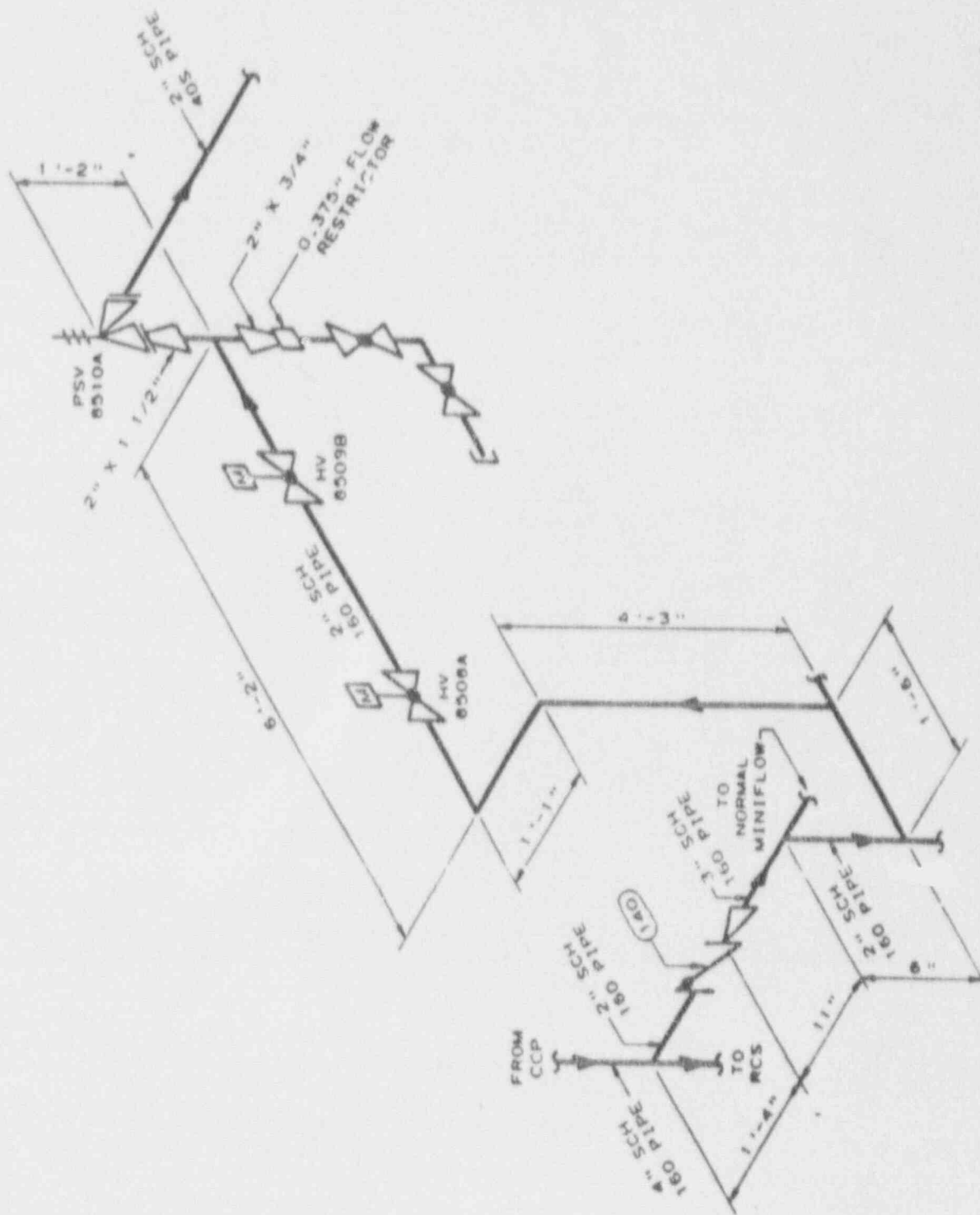
UNITS 1 & 2

SECTION III.D

- D1.        SYSTEM OVERVIEW
- D2.        HISTORICAL INFORMATION
- D3.        SYSTEM OPERABILITY
- D4.        CONCLUSIONS

# D1. CVCS ALTERNATE MINIFLOW SYSTEM

## TYPICAL ISOMETRIC



## D2. HISTORICAL INFORMATION

MAY 1987                      COMMERCIAL OPERATIONS - UNIT#1

MAY 1989                      COMMERCIAL OPERATIONS - UNIT#2

### SUMMARY:

NO SPECIFIC FUNCTIONAL TESTS PERFORMED

RELIEF VALVE OPERABILITY BASED ON BENCH TESTS

ALTERNATE MINIFLOW LINES WERE NOT ADEQUATELY  
VENTED

RELIEF VALVES LIFTED DURING ESFAS SURVEILLANCE  
TESTING

PROBLEMS NOTED WITH BELLOWS FAILURES AND  
SETPOINT DRIFT

DECEMBER 1990              POSSIBLE VALVE CHATTER NOTED DURING 1R2 ESFAS  
TEST - PUMP DISCHARGE FLOW WAS OSCILLATING  
FROM 50-60 GPM WITH NORMAL AND ALTERNATE  
MINIFLOW

SEPTEMBER 1991              INPO ISSUED SER 91-20

REVISED FILL AND VENT PROCEDURES TO VENT  
THRU DRAIN VALVES

REVISED ESFAS TEST PROCEDURES TO LEAVE  
MOV ISOLATED

INCORPORATED SER 91-20 INTO OPERATOR  
REQUALIFICATION TRAINING

## D2. HISTORICAL INFORMATION (CONTINUED)

AUGUST 1992

NRC NOTIFICATION AND ISSUANCE OF IN 92-61

SMALL COLUMN NOT VENTED

POTENTIAL FOR TRANSIENT JUDGED TO BE SMALL,  
BUT NOT EASILY QUANTIFYABLE

INVESTIGATED HOW TO PERFORM TEMPORARY VENTING  
PROCEDURE

VALVE CHATTER CONSIDERED UNLIKELY DUE TO LOWER  
RELIEF VALVE CAPACITY AND PRESSURE LOSSES

POSSIBLE VALVE CHATTER NOTED DURING 1R2  
ATTRIBUTED TO IMPROPER VENTING

OCTOBER 1992

REQUESTED WESTINGHOUSE EVALUATION OF CURRENT  
DESIGN RELATIVE TO VALVE CHATTER ISSUE TO  
CONFIRM VEGP EVALUATION

NOVEMBER 1992

COMANCHE PEAK PERFORMED SUCCESSFUL TEST OF  
ALTERNATE MINIFLOW SYSTEM

VEGP SITE IMPLEMENTED TEMPORARY VENTING  
PROCEDURE

### RESULTS:

- A) ONE LINE JUDGED TO HAVE SOME AIR,  
OTHER 3 JUDGED TO BE WATER SOLID
- B) 2PSV8510B OPENED OUTSIDE TOLERANCE  
INSTALLED 04/92, LIFTED 2410 PSIG  
VALVE NEVER LIFTED
- C) 2PSV8510A OPENED OUTSIDE TOLERANCE  
INSTALLED 10/90, LIFTED 1960 PSIG  
LIFTED 3 TIMES DURING 2R1 ESFAS (11/90)



## D2. HISTORICAL INFORMATION (CONTINUED)

NOVEMBER 1992  
(continued)

NRC ISSUANCE OF IN 92-61 SUPPLEMENT 1

REQUESTED WESTINGHOUSE TO INCORPORATE  
SUPPLEMENT 1 CONCERNS INTO ON-GOING  
EVALUATION

NRC REQUESTED MEETING RELATIVE TO ALTERNATE  
MINIFLOW OPERABILITY

DECEMBER 1992

CROSBY P.O. INITIATED TO INVESTIGATE ROOT  
CAUSE OF SETPOINT DRIFT AND VALIDATE BENCH  
TEST PROCEDURE

WESTINGHOUSE AND UTILITY MEETING REGARDING  
OPERABILITY OF ALTERNATE MINIFLOW SYSTEM  
AND POSSIBLE JOINT NRC PRESENTATION

# MAINTENANCE/SURVEILLANCE HISTORY

LOCATION	S/N	INSTALLED	SET PRESSURE	REMOVED	SET PRESSURE	REASON	CORRECTIVE ACTIONS
1PSV8510A	12	START-UP	2215/2200	11/88 1R1	1638	SURV	RESET SET PRESSURE
	18	11/88 1R1	2225/2230	11/88 1R1	NOT TESTED	LEAKAGE	NOZZLE & DISK REPLACED
	12	11/88 1R1	2222/2217	03/90 1R2	2210/2100	SURV	BELLOWS REPLACED
	20	03/90 1R2	MANF.	10/92	2150	VENT	CURRENTLY INSTALLED
1PSV8510B	10	START-UP	2200/2200	11/88 1R1	2200 LEAK 2900 LIFT	SURV	BELLOWS & DISK HOLDER REPLACED
	19	11/88 1R1	2175/2180	10/89	NOT TESTED	LEAKAGE	REFURBISHED VALVE
	10	10/89	2200/2200	03/90 1R2	2300	SURV	RESET SET PRESSURE
	21	03/90 1R2	MANF.	10/91 1R3	NOT TESTED	LEAKAGE	BELLOWS REPLACED
	13	10/91 1R3	2260/2260	10/92	2240	VENT	CURRENTLY INSTALLED
2PSV8510A	9	START-UP	2200/2200	10/90 2R1	1930/1925	SURV	NOZZLE & BELLOWS REPLACED
	12	10/90 2R1	2225/2250	10/92	1960	VENT	ROOT CAUSE INVESTIGATION
	21	10/92	2220/2260				CURRENTLY INSTALLED
2PSV8510B	13	START-UP	2140/2140	10/90 2R1	2200/2200	SURV	SPARE
	18	10/90 2R1	2250/2250	04/92 2R2	2260/2260	SURV	VALVE REFURBISHED
	10	04/92 2R2	2220/2180	04/92 2R2	NOT TESTED	LEAKAGE	VALVE REFURBISHED
	18	04/92 2R2	2240/2240	10/92	2410	VENT	ROOT CAUSE EVALUATION
	9	10/92	2180/2175				CURRENTLY INSTALLED



### D3. SYSTEM OPERABILITY

- \* WESTINGHOUSE ANALYSIS ILLUSTRATES THAT THE "A" AND "B" TRAIN ALTERNATE MINIFLOW RELIEF VALVES WILL OPERATE SATISFACTORILY FOR VOGTLE UNITS 1 & 2
  
- \* WESTINGHOUSE ANALYSIS FOR VOGTLE IS CONFIRMED BY THE COMANCHE PEAK TEST

## D4. CONCLUSIONS

- \* HIGH HEAD SAFETY INJECTION SYSTEM IS OPERABLE
- \* PERFORM SETPOINT VERIFICATION TESTING OF AT LEAST ONE RELIEF VALVE PER OUTAGE
- \* CONTINUE TO REVIEW ALTERNATIVES TO IMPROVE RELIABILITY OF THE RELIEF VALVES