

CP&L
Carolina Power & Light Company
P.O. Box 165 • New Hill, N.C. 27562

Attachment 1
IN 92-67
September 10, 1992
Page 1 of 6

R. B. RICHEY
Vice President
Harris Nuclear Project

FEB 14 1992

Letter Number: HO-920047 (0)

NRC-774

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United States Nuclear Regulatory Commission
Washington, DC 20555

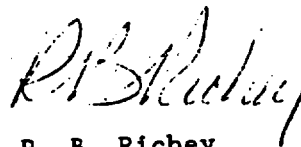
SHEARON HARRIS NUCLEAR POWER PLANT UNIT 1
DOCKET NO. 50-400/LICENSE NO. NPF-63
10CFR PART 21 REPORT
MAIN FEEDWATER PREHEATER BYPASS VALVES

Gentlemen:

Attached is our report on the subject item which was deemed reportable per the provisions of 10CFR21, on January 15, 1992. Carolina Power and Light Company considers that the actions taken are adequate for resolution of this item.

If you should have any questions regarding this matter, please contact Mr. Chuck Olexik at (919) 362-2718.

Very truly yours,



R. B. Richey
Vice President
Harris Nuclear Project

MGW:kjc

cc: Mr. S. D. Ebnetter (NRC-R11)
Ms. B. L. Mozafari (NRR)
Mr. J. E. Tedrow (NRC-SHNPP)

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CAROLINA POWER & LIGHT COMPANY
SHEARON HARRIS NUCLEAR POWER PLANT

FINAL REPORT

POTENTIAL FAILURE OF
MAIN FEEDWATER
PREHEATER BYPASS VALVES

FEBRUARY 12, 1992

REPORTABLE UNDER 10CFR21

SUBJECT:

Shearon Harris Nuclear Power Plant, 10CFR21 reportable deficiency. Potential failure of Main Feedwater Preheater Bypass Isolation Valves.

ITEM:

Deficiency in the actuator (Hiller Model No. 12 SA-A029) for the Main Feedwater Preheater Bypass Isolation Valves.

Plant identification numbers:

2AF-V156 SAB-1

2AF-V157 SAB-1

2AF-V158 SAB-1

The Harris Plant (3 loop Westinghouse NSSS) has model D-4 steam generators (SGs). These SGs have a split feed arrangement where at 100% full power, approximately 82% of the needed SG feed flow is directed to the SG preheater section located immediately above the SG tube sheet, and the remaining 18% is directed to the SG upper U-tube region via the same line used for auxiliary feedwater (AFW) flow. The containment isolation valve for the 18% feed flow path is the Main Feedwater Preheater Bypass Isolation Valve.

SUPPLIED BY:

Anchor Darling Valve Company, Williamsport, Pa., supplied valve and actuator package.

NATURE OF
DEFICIENCY:

The valve and actuator for the three Main Feedwater Preheater Bypass Isolation Valves were specified, purchased, and installed for a Q Class application. During review of a proposed plant modification, it was determined that several actuator components were in fact non-Q.

A potential failure mechanism existed where the failure of a non-Q component could result in the inability of a Q-class component to perform as designed. Specifically, a postulated failure of the air pump (item 6 on attached drawing), could cause a situation where normal leakage of the accumulator (item 1) from its normal 150 psig pressure would go undetected by redundant pressure switches (PS A and B). These switches provide the valves an auto close signal when pressure drops to 66 psig in the input air header.

The valves are containment isolation valves and are required to close within 10 seconds of a feedwater isolation signal. If accumulator pressure drops from its normal 150 psig to below 122 psig, it may not close within the required time. If accumulator pressure drops to approximately 20 psig, there may not be sufficient force to reposition the valve and maintain it closed against maximum differential pressure.

DATE PROBLEM
WAS CONFIRMED
TO EXIST:

CP&L discovered the potential deficiency during review of a proposed modification on January 7, 1992. Subsequent review and evaluation by CP&L engineers and the Harris Plant Nuclear Safety Committee determined this item to be reportable per 10CFR21 on January 15, 1992.

PROBLEM
REPORTED:

Page 4 of 6

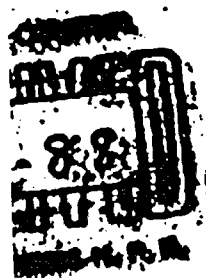
C. S. Hinnant notified the NRC Operations Center that this item was reportable under 10CFR21 on January 16, 1992.

SAFETY
IMPLICATIONS:

This design deficiency could have compromised the containment boundaries capability to prevent or mitigate the consequences of accidents resulting in offsite exposures.

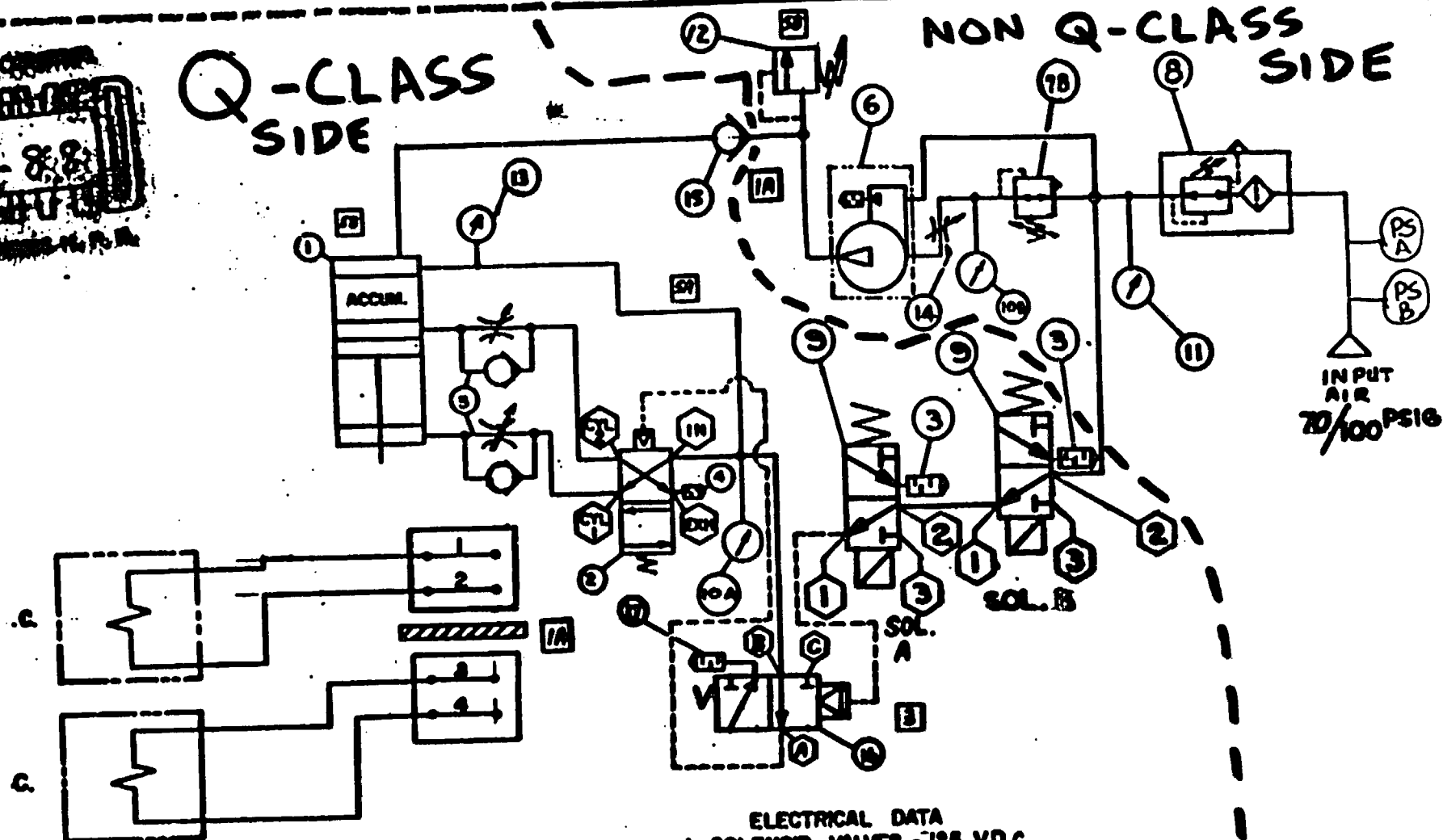
CORRECTIVE
ACTION:

Upon discovery of this condition on January 7, 1992 a two hour surveillance interval was commenced to verify the actuators' components were functioning properly and the accumulators were fully pressurized. On January 12, 1992 a plant change request (PCR 06158) was implemented which replaced the non-Q components with suitable components. Testing was completed satisfactorily and the two hour surveillance interval was suspended.



**Q-CLASS
SIDE**

**NON Q-CLASS
SIDE**



ELECTRICAL DATA
1. SOLENOID VALVES -125 V.D.C.
+12%, -18% VOLTAGE
INTERMITTANT SERVICE

OPERATING DATA

NORMAL OPERATING ADJUSTMENT (SET AT FACTORY)

- 1. FILTER/REG. (ITEM 8) 70 PSIG.**
- 2. AIR PUMP REG. (ITEM 7B) 20 PSIG.**
- 4. NEEDLE VALVE (ITEM 14) USED TO ADJUST PUMP SPEED. FULL CLOSE POSITION STOPS PUMP**

SE	GAUGE READ 250 PSIG 8-29-82
SD	WAS SET AT 250 PSIG 8-29-82
SC	WAS SET AT 250 PSIG 8-29-82

ITEM	DESCRIPTION
1	BASIC ACTUATOR - 12" BORE X 6 3/4" STROKE WITH ACCUMULATOR
2	1/2" - 4 WAY VALVE NORGREN VALVE MODEL NO. F0015A
3	1/4" EXHAUST BREATHER MOSIER MODEL NO. EM-2
4	1/2" EXHAUST MUFFLER QUETAIRE MODEL BB-4
5	1/2" FLOW CONTROL VALVE REPUBLIC MODEL NO. M4113C-8328-6
6	AIR PUMP HASKEL MODEL NO. AAD-5
7B	1/2" AIR REGULATOR NORGREN MODEL NO. 11-002-081 26
2A 8	1/4" FILTER-REGULATOR CONOFLOW # GFH20XT1782
1B 2B 9	1/4" - 3 WAY SOLENOID OPERATED VALVE ASCO MODEL NO. NP-8320A185V 125 V.D.C. NORMALLY CLOSED
10A 10B	0-160 PSIG GAUGE NORGREN # 18-013-208 ITEM 10A MTS. TO ITEM 7A. ITEM 10B MTS. TO ITEM 7B.
11	0-160 PSIG GAUGE - MTS. TO ITEM 8 NORGREN # 18-013-209
12	1/2" RELIEF VALVE - NORGREN # 16-001-035
13	0-300 PSIG GAUGE - MTS. TO ACCUM. HEAD MARSH # 2 1/2 - 1 DFM - 1/4 CBM - 300
14	1/2" NEEDLE VALVE - MANATROL # N-800-8-10
1A 15	1/2" CHECK VALVE KEPNER # 1582
2C 16	1/4" 2-WAY VALVE - NORGREN C0007F
1A 17	1/4" EX. BREATHER MOSIER # EM-6

NOTES:

- AIR CIRCUIT SHOWN WITH THE ACTUATOR IN ITS NORMAL POSITION (RETRACTED) SOLENOID (A) & (B) ENERGIZED.
- INDICATES PORT DESIGNATION AS STAMPED ON VALVES.

RALPH A. MILLER COMPANY PITTSBURGH, PA. 15234	
AIR CIRCUIT & WIRING DIAGRAM	
DATE: <u>JL 10-2-80</u>	SCALE: _____
BY: <u>D.H. 10-23-80</u>	APP: <u>D.B. 10-24-80</u>
12 SA-A029 SHEET REV. 1 OF 5	