



Carolina Power & Light Company

34 APR 17 P12:45

P. O. Box 101, New Hill, N. C. 27562  
April 9, 1984

Mr. James P. O'Reilly  
United States Nuclear Regulatory Commission  
Region II  
101 Marietta Street, Northwest (Suite 2900)  
Atlanta, Georgia 30303

NRC-208

CAROLINA POWER & LIGHT COMPANY  
SHEARON HARRIS NUCLEAR POWER PLANT  
1986 - 900,000 KW - UNIT 1  
**WESTINGHOUSE EMD MANUFACTURED GATE VALVES,  
ITEM 53**

Dear Mr. O'Reilly:

Attached is the final report on the subject item which was deemed reportable per the provisions of 10CFR50.55(e) and 10CFR, Part 21, on December 4, 1980. With this report, Carolina Power & Light Company considers this matter closed.

if you have any questions regarding this matter, please do not hesitate to contact me.

Yours very truly,

R. M. Parsons  
Project General Manager  
Shearon Harris Nuclear Power Plant

RMP/sh

Attachment

cc: Messrs. G. Maxwell/R. Prevatte (NRC-SHNPP)  
Mr. R. C. DeYoung (NRC)

8405070188 840409  
PDR ADOCK 05000400  
S PDR

11  
IE27

CAROLINA POWER & LIGHT COMPANY  
SHEARON HARPIS NUCLEAR POWER PLANT

UNIT 1

FINAL REPORT

WESTINGHOUSE EMD MANUFACTURED GATE VALVES  
ITEM 53

APRIL 9, 1984

REPORTABLE UNDER 10CFR50.55(e) AND 10CFR21

SUBJECT: 10CFR50.55(e) and 10CFR21 Reportable Item  
Shearon Harris Nuclear Power Plant Units 1 and 2  
Westinghouse EMD Manufactured Gate Valves  
Item 53

ITEM: See attachment

SUPPLIED BY: Westinghouse Electro-Mechanical Division

NATURE OF DEFICIENCY: Potential for valves not to fully close/open under design conditions.

DATE PROBLEM WAS CONFIRMED TO EXIST: Westinghouse Letter CQL-6135 dated November 19, 1980 received November 26, 1980.

PROBLEM REPORTED:

On November 28, 1980, N. J. Chiangi informed the NRC (Mr. J. K. Rausch) that this item was potentially reportable under 10CFR50.55(e).

On December 4, 1980, N. J. Chiangi informed the NRC (Mr. J. K. Rausch) that the problem was reportable under 10CFR21 and 10CFR50.55(e).

On December 29, 1980, N. J. Chiangi issued an interim report to the NRC (Mr. James P. O'Reilly).

On July 9, 1981, CP&L's response to I. E. Bulletin No. 81-02 was submitted to the NRC (M. A. McDuffie to J. P. O'Reilly).

On November 13, 1982, CP&L's response to I. E. Bulletin No. 81-02 (supplement) was submitted to the NRC (M. A. McDuffie to J. P. O'Reilly).

On December 22, 1981, N. J. Chiangi issued a second interim report to the NRC (James P. O'Reilly).

On April 8, 1983, R. M. Parsons issued a third interim report to the NRC (James P. O'Reilly).

On December 29, 1983, R. M. Parsons issued a fourth interim report to the NRC (James P. O'Reilly).

On March 1, 1984, R. M. Parsons issued a fifth interim report to the NRC (James P. O'Reilly).

SCOPE OF  
PROBLEM:

The attached list of valves failed to completely open/close under their design differential pressure.

REASON  
PROBLEM IS  
REPORTABLE:

Failure of these valves to properly function could create or lead to a significant safety deficiency. The potential safety significance of each valve is listed in the attached table.

CORRECTIVE  
ACTION:

The hardware and software changes have been completed for each of the affected valves listed in the attached table. In addition, SHNPP design documents were issued for the restamping of all affected valve tags. The required restamping has been completed.

TABLE 1

VALVE I.D.	VALVE LOCATION	VALVE FUNCTION AND SYSTEM	MAXIMUM P (PSID) AS FLOW APPROACHES ZERO		P (PSID) BELOW WHICH VALVE WILL CLOSE (AS SHIPPED)	(d) POTENTIAL SAFETY CONSEQUENCES	(e) ACTUAL MODIFICATION	DATE OF MODIFICATION
			Equip. Spec.	Funct. Reqmt.				
3GM78FN	8106	Chg. Pump Miniflow Iso. - CVCS	2750	2750	700	2, 4	A	9/82 del.
3GM78FN	8107 <sup>c)</sup>	Chg. Line Iso. CVCS	2750	2750	700	2, 4	A	9/82 del.
3GM78FN	8108 <sup>c)</sup>	Chg. Line Iso. CVCS	2750	2750	700	2, 4	A	9/82 del.
3GM78FN	8801A	Boron Inj. Tank Iso. - SIS	2750	2750 (open function)	2450 (open)	2, 3	B	2/22/82
3GM78FN	8801B	Boron Inj. Tank Iso. - SIS	2750	2750 (open function)	700	2, 3	B	2/22/82
3GM78FN	8803A	Boron Inj. Tank Iso. - SIS	2750	2750 (open function)	2450	2, 3	B	2/22/82
3GM78FN	8803B	Boron Inj. Tank Iso. - SIS	2750	2750 (open function)	2450	2, 3	B	2/22/82
3GM78FN	8884	HL Recirc. Iso. SIS	2750	0	700	13	D	---
3GM78FN	8885	CL Recirc. Iso. SIS	2750	2750 (open function)	2450	2, 3	B	2/22/82
3GM78FN	8886	HL Recirc. Iso. SIS	2750	0	700	13	D	---

TABLE 1

VALVE I.D.	VALVE LOCATION	VALVE FUNCTION AND SYSTEM	MAXIMUM P (PSID) AS FLOW APPROACHES ZERO		P (PSID) BELOW WHICH VALVE WILL CLOSE (AS SHIPPED)	(d) POTENTIAL SAFETY CONSEQUENCES	(e) ACTUAL MODIFICATION	DATE OF MODIFICATION
			Equip. Spec.	Funct. Reqmt.				
3GM88FNH	8000A <sup>a)</sup>	PZR. PORV Block RCS	2750	2500	700	1, 5	A	9/82 del.
3GM88FNH	8000B <sup>b)</sup>	PZR. PORV Block RCS	2750	2500	700	1, 5	A	9/82 del.
3GM88FNH	8000C	PZR. PORV Block RCS	2750	2500	700	1, 5	A	9/82 del.
4GM72FB	LCV115C	VCT Outlet CVCS	200	100	---	6	C	2/22/82
4GM72FB	LCV115E	VCT Outlet CVCS	200	100	---	6	C	2/22/82
4GM78FN	8132A	Chg. Pump Disch. XO Iso. - CVCS	2750	500	850	13	D	-----
4GM78FN	8132B	Chg. Pump Disch. XO Iso. - CVCS	2750	500	850	13	D	-----
4GM78FN	8133A	Chg. Pump Disch. XO Iso. - CVCS	2750	500	850	13	D	-----
4GM78FN	8133B	Chg. Pump Disch. XO Iso. - CVCS	2750	500	850	13	D	-----
8GM72FB	LCV115B	RWST to Suction of CCPs - CVCS	200	200	120	7	B	2/22/82
8GM72FB	LCV115D	RWST to Suction of CCPs - CVCS	200	200	120	7	B	2/22/82
8GM72FB	8130A	CCP Suction - CVCS	200	200	120	6	B	2/22/82



TABLE 1

VALVE I.D.	VALVE LOCATION	VALVE FUNCTION AND SYSTEM	MAXIMUM P (PSID) AS FLOW APPROACHES ZERO		P (PSID) BELOW WHICH VALVE WILL CLOSE (AS SHIPPED)	(d) POTENTIAL SAFETY CONSEQUENCES	(e) ACTUAL MODIFICATION	DATE OF MODIFICATION
			Equip. Spec.	Funct. Reqmt.				
8GM72FB	8130A	CCP Suction - CVCS	200	200	120	6	B	2/22/82
8CM72FB	8130B	CCP Suction - CVCS	200	200	120	6	B	2/22/82
8GM72FB	8131A	CCP Suction - CVCS	200	200	120	6	B	2/22/82
8GM72FB	8131B	CCP Suction - CVCS	200	200	120	6	B	2/22/82
8GM74FE	8706A	RHR HX Disch. to CCP Suction - RHR	700	300	250	8	C	2/22/82
8GM74FE	8706B	RHR HX Disch. to CCP Suction - RHR	700	300	250	8	C	2/22/82
10GM74FE	8887A	RHR Disch. Cross Connect - SIS	700	300	250	9	C	2/22/82
10GM74FE	8887B	RHR Disch. Cross Connect - SIS	700	300	250	9	C	2/22/82
10GM78FN	8888A	RHR Pump CL Inj. SIS	2750	200	1180	13	D	---
10CM78FN	8888B	RHR Pump CL Inj. SIS	2750	200	1180	13	D	---
10GM78FN	8889	RHR HX Disch. to HL - SIS	2750	200	1180	13	D	---
12GM88FNH	8808A	Accumulator Disch. SIS	2750	1750 (open function)	2200	13	D	---
12GM88FNH	8808B	Accumulator Disch. SIS	2750	1750 (open function)	2200	13	D	---

TABLE I

VALVE I.D.	VALVE LOCATION	VALVE FUNCTION AND SYSTEM	MAXIMUM	P (PSID)	P (PSID) BELOW WHICH VALVE WILL CLOSE (AS SHIPPED)	(d) POTENTIAL SAFETY CONSEQUENCES	(e) ACTUAL MODIFICATION	DATE OF MODIFICATION
			AS FLOW APPROACHES ZERO	AS FLOW APPROACHES ZERO				
			Equip. Spec.	Funct. Reqmt.				
12GM88FNH	8808C	Accumulator Disch. SIS	2750	1750 (open function)	2200	13	D	---
12GM88SEH	8701A	RHR Suction Iso., Outer - RHR	700	700	490	10	B	2/22/82
12GM88SEH	8701B	RHR Suction Iso., Outer - RHR	700	700	490	10	B	2/22/82
12GM88SEH	8702A	RHR Suction Iso., Inner - RHR	700	700	490	11	B	2/22/82
12CM88SEH	8702B	RHR Suction Iso., Inner - RHR	700	700	490	11	B	2/22/82
14GM74FE	8809A	RWST to RHR Pump Suction - SIS	700	100	300	13	D	---
14GM74FE	8809B	RWST to RHR Pump Suction - SIS	700	100	300	13	D	---
14GM74FE	8811A	Sump Suction - SIS	700	100	300	13	D	---
14GM74FE	8811B	Sump Suction - SIS	700	100	300	13	D	---
14GM74FE	8812A	Sump Suction - SIS	700	700	300	12	B	2/22/82
14GM74FE	8812B	Sump Suction - SIS	700	700	300	12	B	2/22/82

NOTES: Each valve contracted for both Shearon Harris units.

- a) Unit 2 valve sent to Marshall Test Loop for EPRI Test Program
- b) Unit 2 valve sent to Pilgrim
- c) Unit 2 valve sent to Farley via Westinghouse
- d) See Enclosure 1 for key to potential safety consequences
- e) See Enclosure 2 for key to actual modifications



KEY TO POTENTIAL SAFETY CONSEQUENCES

<u>I.D. No.</u>	<u>CONSEQUENCE</u>
1	(POPV Block Valves) Potential incomplete isolation of pressurizer PORV.
2	Potential cavitation of a centrifugal charging pump or safety injection pump due to operation beyond maximum runout flow.
3	Potential inability to perform post-accident containment isolation.
4	Potential degradation of safety injection flow below values in SAR.
5	Potential inability to isolate RCS pressure boundary.
6	Two valves in series; failure of either valve to close reduces redundancy of providing isolation. Alternate valve will provide isolation.
7	One MOV in each of two parallel paths from the RWST to suction of the CCPs; failure reduces redundancy of providing isolation of RWST during the recirculation phase following a LOCA. Isolation will be provided by a check valve in series with the two paths.
8	Valve is opened for recirculation phase following a LOCA. Failure of valve to close precludes realignment of RHRS for normal operation.
9	Failure of valve to close reduces redundancy of providing low lead train separation during CL recirculation phase following a LOCA. Train separation can be achieved by closing other valve.
10	Two valves in series; failure of outer isolation valve to close reduces redundancy of providing isolation. Isolation is provided by closing the inner valve.
11	Same as No. 10 above except for closing the outer valve.
12	Valve is opened for recirculation following a LOCA. Valve would be closed for containment isolation. Valve is encapsulated within a protective housing which acts as the redundant containment isolation. Failure of either valve to close reduces redundancy. Alternate valve will provide isolation.
13	None yet identified - valve meets functional requirement.

KEY TO ACTUAL MODIFICATIONS

I.D.

MODIFICATION

- |   |   |
|---|---|
| A | Valves will be replaced - original valves utilized elsewhere.               |
| B | Gear change - modification performed on site with valve installed.          |
| C | Adjust torque switch - modification performed on site with valve installed. |
| D | No modification indicated - valve meets functional requirement.             |