

# CATEGORY 1

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9707090073      DOC. DATE: 97/07/02      NOTARIZED: NO      DOCKET #  
 FACIL: 50-50 Shearon Harris Nuclear Power Plant, Unit 1, Carolina      05000400  
 AUTH. NAME      AUTHOR AFFILIATION  
 VERRILLI, M.      Carolina Power & Light Co.  
 DONAHUE, J.W.      Carolina Power & Light Co.  
 RECIP. NAME      RECIPIENT AFFILIATION

SUBJECT: LER 97-015-00: on 970602, inadequate auxiliary feedwater sys  
 flow control valve surveillance testing deficiency  
 identified. Caused by failure to recognize impact on TS  
 4.7.1.2.1. Readjusted AFW FCV actuator spring.

DISTRIBUTION CODE: IE22T      COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 4  
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NOTES: Application for permit renewal filed. 05000400

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JUL 2 1997

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10CFR50.73

SHEARON HARRIS NUCLEAR POWER PLANT UNIT 1  
DOCKET NO. 50-400  
LICENSE NO. NPF-63  
LICENSEE EVENT REPORT 97-015-00

Sir or Madam:

In accordance with Title 10 to the Code of Federal Regulations, the enclosed Licensee Event Report is submitted. This report describes inadequate testing for the Auxiliary Feedwater System Flow Control Valves.

Sincerely,

J. W. Donahue  
Director of Site Operations  
Harris Plant

MV

Enclosure

- c: Mr. J. B. Brady (HNP Senior NRC Resident)  
Mr. L. A. Reyes (NRC Regional Administrator, Region II)  
Mr. V. L. Rooney (NRC - NRR Project Manager)

9707090073 970702  
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IE22/1

**LICENSEE EVENT REPORT (LER)**

(See reverse for required number of digits/characters for each block)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), 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)

Harris Nuclear Plant Unit-1

DOCKET NUMBER (2)

50-400

PAGE (3)

1 OF 3

TITLE (4)

Inadequate Auxiliary Feedwater System Flow Control Valve surveillance testing resulting in Technical Specification violation.

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
6	2	97	97	015	00	7	2	97		
									FACILITY NAME	DOCKET NUMBER
									FACILITY NAME	DOCKET NUMBER
										05000

  

OPERATING MODE (9)	POWER LEVEL (10)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)				
4	0%	20.2201(b)	20.2203(a)(2)(v)	<input checked="" type="checkbox"/>	50.73(a)(2)(i)	50.73(a)(2)(viii)
		20.2203(a)(1)	20.2203(a)(3)(i)		50.73(a)(2)(ii)	50.73(a)(2)(x)
		20.2203(a)(2)(i)	20.2203(a)(3)(ii)		50.73(a)(2)(iii)	73.71
		20.2203(a)(2)(ii)	20.2203(a)(4)		50.73(a)(2)(iv)	OTHER
		20.2203(a)(2)(iii)	50.36(c)(1)		50.73(a)(2)(v)	Specify in Abstract below or in NRC Form 366A
		20.2203(a)(2)(iv)	50.36(c)(2)		50.73(a)(2)(vii)	

LICENSEE CONTACT FOR THIS LER (12)

NAME

Michael Verrilli Sr. Analyst - Licensing

TELEPHONE NUMBER (Include Area Code)

(919) 362-2303

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE).

NO

EXPECTED SUBMISSION DATE (15)

MONTH DAY YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On June 2, 1997, with the plant in mode 4 for refueling outage 7, a deficiency was identified related to previous testing of the Auxiliary Feedwater (AFW) System flow control valves (FCV). Specifically, Technical Specification (TS) 4.7.1.2.1 requires the motor driven AFW pump FCVs to open upon receipt of an auto open signal. This requirement was added by amendment 42 to the facility operating license following a plant modification (PCR-6502), completed in April 1994 during refueling outage 5. PCR-6502 was installed to provide an automatic open feature for the FCVs, which would allow AFW flow to be throttled during plant start-up activities. Operations surveillance test procedures have tested these valves on a quarterly basis, but did not verify their ability to open during high differential pressure conditions that exist during plant start-up while in mode 3, with low Steam Generator pressures present. In May 1994, Operations personnel identified that the FCVs experienced sticking problems when S/G pressures were very low while in mode 3. To address this condition, maintenance was performed on the valve actuators and procedures were revised to alert operators of this condition and provide guidance on how to open the FCVs if they stuck closed. During additional investigation in March, 1996, testing confirmed that the FCVs would not open from the fully shut position if steam generator pressures were less than 320 psig. However, during these previous instances, plant personnel did not consider the condition to be mode limiting or reportable as a technical specification surveillance requirement violation.

This condition was caused by the failure to recognize the impact on TS 4.7.1.2.1 that the AFW FCV actuator deficiencies created when low steam generator pressures were present while in mode 3. This resulted in past surveillance testing that did not completely satisfy the requirement for the AFW FCVs to respond as required per Technical Specification 4.7.1.2.1.

Corrective actions included readjusting the AFW FCV actuator spring pre-loading and testing the FCVs to verify their operability. The site surveillance test scheduling process will also be revised to ensure that future testing of the FCVs is performed with the high differential pressure conditions present.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET	LER NUMBER (5)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Shearon Harris Nuclear Plant - Unit #1	50-400	97	015	00	2 OF 3

TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

**EVENT DESCRIPTION:**

On June 2, 1997, with the plant in mode 4 for refueling outage 7, a deficiency was identified related to previous testing of the Auxiliary Feedwater (AFW) System flow control valves (FCVs, 1AF-49, 1AF-50, & 1AF-51, EIS Code: BA-FCV). Specifically, Technical Specification 4.7.1.2.1 requires the motor driven AFW pump FCVs to open upon receipt of an auto open signal. This requirement was added by amendment 42 to the facility operating license following a plant modification (PCR-6502) installed in April 1994 during refueling outage 5. PCR-6502 was installed to provide an automatic open feature for the FCVs, which would allow AFW flow to be throttled during plant start-up activities. Operations Surveillance Test procedures (OST-1044 and OST-1045) have tested these valves on a quarterly basis, but did not verify their ability to open during high differential pressure conditions that exist during plant start-up while in mode 3 with low Steam Generator pressures present.

In May 1994, Operations personnel identified that the FCVs experienced sticking problems when S/G pressures were very low while in mode 3. To address this condition, maintenance was performed on the valve actuators and procedures were revised to alert operators of this condition and provide guidance on how to open the FCVs if they were stuck closed. During additional investigation in March, 1996, testing confirmed that the FCVs would not open from the fully shut position if steam generator pressures were less than 320 psig. However, during these previous instances, plant personnel did not consider the condition to be mode limiting or reportable as a technical specification surveillance requirement violation.

The FCV issue was raised again during plant start-up following refueling outage 7, when testing (EPT-711) revealed that the valves would not open at low steam generator pressures. Investigation determined that the FCV actuator spring pre-loading was not set to allow maximum valve performance. This was resolved by readjusting the actuator spring pre-loading which allowed the valve to open as designed. Testing was performed on June 3, 1997 to confirm the valves operability, prior to mode 3 entry, which proved that the FCV material equipment problems had been resolved and that the FCVs would open against the high differential pressures associated with low steam generator pressure.

Based on the above, during the period from refueling outage 5 to May, 1997, Technical Specification 4.7.1.2.1 for the testing of the auto open signal was not properly performed. This constitutes a violation of Technical Specifications and is being reported per 10CFR50.73.a.2.i.

The turbine driven AFW pump FCVs were not effected by this condition. PCR-6502 did not install an automatic open feature for these valves. Also, high differential pressures would not exist across these FCVs since the turbine driven AFW pump discharge pressure is controlled by existing steam generator pressure.

**CAUSE:**

This condition was caused by the failure to recognize the impact on TS 4.7.1.2.1 that the AFW FCV actuator deficiencies created when low steam generator pressures were present while in mode 3. This resulted in past surveillance testing that did not completely satisfy the requirement for the AFW FCVs to respond as required per Technical Specification 4.7.1.2.1.

**SAFETY SIGNIFICANCE:**

There were no adverse safety consequences as a result of this event. The AFW FCV valves have operated as required in modes 1 and 2. The deficient condition only existed during plant start-up while in mode 3 with low steam generator pressures. Procedures were in place to provide guidance for opening a stuck AFW FCV if needed for controlling Steam Generator water level while shutdown or during plant start-up.

**LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION**

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
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TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

**PREVIOUS SIMILAR EVENTS:**

LER #95-15 was submitted on January 11, 1996 and reported the failure to perform response time testing on the AFW FCVs following the installation of the auto-open modification. Though related to testing of the AFW FCVs, the corrective actions contained in LER 95-15 focused primarily on the response time issue and would not have prevented the event discussed in this LER.

**CORRECTIVE ACTIONS COMPLETED:**

1. The AFW FCV actuator spring pre-loading was adjusted June 3, 1997 to ensure that the valves would open during periods of low steam generator pressure. Testing was also performed on June 3, 1997, prior to mode 3 entry, to verify the operability of the FCVs.
2. This event was reviewed in detail by plant management. This included a discussion on how this condition should have been previously identified as a TS compliance issue and emphasized the importance of management aggressively addressing and resolving plant problems.

**CORRECTIVE ACTIONS PLANNED:**

1. The site surveillance test scheduling process will be revised to ensure that the AFW FCVs are tested once per 18 months with the high differential pressure present. This will be completed by August 15, 1997.

