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SUBJECT: LER 89-008-00:on 890410,procedure deficiencies cause missed surveillance for thermal overload protection bypass.
W/8 ltr.

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NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
SHEARON HARRIS NUCLEAR POWER PLANT - UNIT ONE	0 5 0 0 0 4 0 0	1 OF 0 4

TITLE (4) PROCEDURE DEFICIENCIES CAUSE MISSED SURVEILLANCE FOR THERMAL OVERLOAD PROTECTION BYPASS

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 NAMES	DOCKET NUMBER(S)
											0 5 0 0 0
0 4	1 0	8 9	8 9	—	0 0 8	— 0 0	0 5	0 8	8 9		0 5 0 0 0

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	1 0 0	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
		20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
		20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iii)	X 50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
		20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
ANDREW HOWE - SR. SPECIALIST	AREA CODE 9 1 9 3 6 2 - 2 7 1 9

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)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single space typewritten lines) (16)

ABSTRACT:

On April 10, 1989, a deficiency was discovered in the testing of the thermal overload bypass circuit for motor-operated valve 1MS-72. This valve is the steam supply for the Turbine-driven Auxiliary Feedwater Pump from the C Steam Generator. The test procedure would not detect the postulated failure of a relay in the bypass circuit because the normal control circuit remained functional during the test, so that the valve would cycle properly as long as no actual thermal condition existed.

The valve was declared inoperable at 1530 on April 10 in accordance with the action requirements of Specification 3.8.4.2. A test procedure was revised to address the deficiency by lifting a lead in the normal control circuit to simulate a thermal overload condition and then cycling the valve. The test was satisfactorily completed at 1750 that same day, and the valve was returned to service.

The Technical Specification Equipment List Program identifies those motor-operated valves which require the thermal overload protection bypass function. A footnote was improperly applied to valve 1MS-72 which identified that the safeguards actuation circuit testing satisfied the testing requirements of the bypass function.

The deficiency was discovered during an independent review of thermal overload bypass testing procedures, and no further deficiencies were identified. Revisions to the test procedure and to the Technical Specification Equipment List program will correct the deficiency.

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
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SHEARON HARRIS NUCLEAR POWER PLANT UNIT ONE	0 5 0 0 0 4 0 0	8 9	— 0 0 8	— 0 0	0 2 OF 0 4

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

DESCRIPTION:

On April 10, 1989, the On-site Nuclear Safety Unit identified a surveillance test procedure deficiency for testing of motor-operated valve thermal overload bypass circuits (Technical Specification 3.8.4.2, Surveillance 4.8.4.2). The bypass circuit for valve 1MS-72, the C Steam Generator steam supply to the Turbine-driven Auxiliary Feedwater Pump (EIIS:BA), was not adequately tested in that the failure of a relay in the bypass circuit would not have been detected.

There are two design approaches used to provide bypass for the thermal overload protection. For most safety-related motor-operated valves requiring bypass of thermal overload protection during accident conditions, the function is accomplished by actuation of relays in the motor control center of the valve. The relays for all valves of each safety train are actuated by a single circuit in the emergency load sequencing system. This circuit is actuated on a safety injection or loss of off-site power signal. For other valves, the bypass function is accomplished using the Engineered Safeguards Feature actuation control circuit, so that no separate bypass relay is required. This is explicitly identified in the Technical Specification Equipment List Program in the table listing of valves to which Specification 3.8.4.2 applies. A footnote to such valves identifies that testing requirements for the bypass function are satisfied by testing of the safeguards actuation circuit since both functions are accomplished by the same circuit.

Valve 1MS-72 is identified in the table with this footnote applicable since the bypass function is actuated using the safeguards actuation control circuit. However, the circuit has two relays, one of which actuates the valve and one which bypasses the thermal overload circuit. During testing, if the bypass relay failed to actuate, the normal control power circuit would still be energized as long as no thermal overload condition developed, and the valve would cycle normally. Thus, the failure of the bypass relay to function would not have been detected during testing.

Valve 1MS-72 was declared inoperable at 1530 on April 10 as per the action requirements of the Specification 3.8.4.2. A change to a test procedure was made to lift a lead in the normal control power circuit to simulate a thermal overload condition, thus interrupting the normal control circuit, and ensuring that the valve cycled during the test. The revised test was successfully completed and the valve was returned to operable status at 1750 on April 10.

CAUSE:

The cause of this event was procedural inadequacies which resulted in the insufficient testing of the thermal overload bypass circuit. The test procedure did not verify proper operation of all relays in the bypass circuit. The Technical Specification Equipment List Program improperly applied a footnote which states that the testing of the safeguards actuation circuit satisfies the testing requirements of Specification 3.8.4.2 when in fact a successful actuation of the valve is possible during safeguards testing with the bypass function not operable.

SAFETY SIGNIFICANCE:

Successful testing completed after discovery of the problem verified that the bypass circuit was in fact functioning correctly, so if a thermal overload condition had occurred during a demand for valve 1MS-72 to open, it would not have prevented the valve from performing its safety function. Even if the bypass circuitry had been proven to be inoperable by the testing, a redundant steam supply valve would have been available to operate the Turbine-driven Auxiliary Feedwater pump, the the two Motor-driven Auxiliary Feedwater pumps would also have been available.

Previous Licensee Event Reports have identified inadequate surveillance test procedures where components were not included in the test: LERs 87-030, 87-043, 87-057, and 87-066. Of these, only LER 87-066 involves a similar deficiency where a portion of the actuation logic for containment purge isolation was not included in the monthly test procedure. The root cause of LER 87-066 was an administrative omission in the procedure and is not therefore relevant to this report.

This report is required in accordance with 10CFR50.73(a)(2)(i)(B) as a noncompliance with Technical Specifications, due to the failure to satisfactorily perform surveillance requirement 4.8.4.2 within its specified interval.

CORRECTIVE ACTIONS:

1. The valve 1MS-72 was satisfactorily tested to ensure operability of the thermal overload bypass circuit, and was returned to service at 1750 on April 10, 1989.

2. The review which discovered the inadequacy in thermal overload bypass testing included all valves subject to this requirement, and no further deficiencies were identified.

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SHEARON HARRIS NUCLEAR POWER PLANT UNIT ONE	0 5 0 0 0 4 0 0	8 9	— 0 0 8	— 0 0	0 4 OF 0 4

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

CORRECTIVE ACTIONS: (continued)

3. The procedure for testing the thermal overload bypass circuit for 1MS-72 will be revised to ensure all relays are verified to function properly.

4. The Technical Specification Equipment List Program table will be revised for valve 1MS-72 to correctly identify its testing requirements.

CP&L
Carolina Power & Light Company

HARRIS NUCLEAR PROJECT
P.O. Box 165
New Hill, NC 27562

MAY 8 1989

File Number: SHF/10-13510C
Letter Number: HO-890053 (O)

U.S. Nuclear Regulatory Commission
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SHEARON HARRIS NUCLEAR POWER PLANT UNIT 1
DOCKET NO. 50-400
LICENSE NO. NPF-63
LICENSEE EVENT REPORT 89-008-00

Gentlemen:

In accordance with Title 10 to the Code of Federal Regulations, the enclosed Licensee Event Report is submitted. This report fulfills the requirement for a written report within thirty (30) days of a reportable occurrence and is in accordance with the format set forth in NUREG-1022, September 1983.

Very truly yours,

R. B. Richey, Manager
Harris Nuclear Project

AJH:acm

Enclosure

cc: Mr. R. A. Becker (NRR)
Mr. W. H. Bradford (NRC - SHNPP)
Mr. S. D. Ebneter (NRC - RII)

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