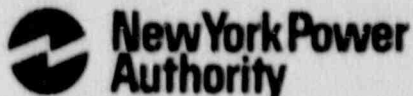


James A. FitzPatrick  
Nuclear Power Plant  
P.O. Box 41  
Lycoming, New York 13093  
315 342-3840



William Fernandez II  
Resident Manager

October 10, 1990  
JAFP-90-0738

United States Nuclear Regulatory Commission  
Document Control Desk  
Mail Station P1-137  
Washington, D.C. 20555

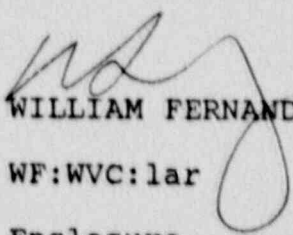
SUBJECT: DOCKET NO. 50-333  
LICENSEE EVENT REPORT: 89-004-01 - Design Deficiency -  
Cooling Water Valves Failed  
Closed

Dear Sir:

Enclosed please find referenced Licensee Event Report in  
accordance with 10 CFR 50.73.

If there are any questions concerning this report, please contact  
Mr. W. Verne Childs at (315) 349-6071.

Very truly yours,

  
WILLIAM FERNANDEZ

WF:WVC:lar

Enclosure

cc: USNRC, Region 1  
USNRC Resident Inspector  
INPO Records Center  
American Nuclear Insurers

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PDR ADUCK 05000333  
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*(Sent No)*  
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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) **JAMES A. FITZPATRICK NUCLEAR POWER PLANT** DOCKET NUMBER (2) **050003331** PAGE (3) **1 OF 3**

TITLE (4) **Design Deficiency Potentially Affects Both Divisions of Safety-Related Systems Due to Valves Failing Closed on Loss of Air**

EVENT DATE (5)			LER NUMBER (6)		REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)		
MONTH	DAY	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME		DOCKET NUMBER
03	09	89	004	01	10	10	90			05000

OPERATOR MODE (9)  N

POWER LEVEL (10) **100**

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)

<input type="checkbox"/> 89.400(a)	<input type="checkbox"/> 89.400(a)(1)	<input type="checkbox"/> 89.75(a)(2)(iv)	<input type="checkbox"/> 75.71(b)
<input type="checkbox"/> 89.400(b)(1)(ii)	<input type="checkbox"/> 89.400(a)(2)	<input checked="" type="checkbox"/> 89.75(a)(2)(iv)	<input type="checkbox"/> 75.71(c)
<input type="checkbox"/> 89.400(b)(1)(iii)	<input type="checkbox"/> 89.75(a)(3)(i)	<input type="checkbox"/> 89.75(a)(2)(v)	OTHER (Specify in Abstract below and in Part 3, NRC Form 890A)
<input type="checkbox"/> 89.400(b)(1)(iv)	<input type="checkbox"/> 89.75(a)(3)(ii)	<input type="checkbox"/> 89.75(a)(2)(v)(A)	
<input type="checkbox"/> 89.400(b)(1)(v)	<input type="checkbox"/> 89.75(a)(3)(iii)	<input type="checkbox"/> 89.75(a)(2)(v)(B)	
<input type="checkbox"/> 89.400(b)(1)(vi)	<input type="checkbox"/> 89.75(a)(3)(iv)	<input type="checkbox"/> 89.75(a)(2)(vi)	

LICENSEE CONTACT FOR THIS LER (12)

NAME **W. VERNE CHILDS, SENIOR LICENSING ENGINEER** TELEPHONE NUMBER **315 349-6071**

AREA CODE **315**

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC

SUPPLEMENTAL REPORT EXPECTED (14)  YES (If yes, complete EXPECTED SUBMISSION DATE)  NO

EXPECTED SUBMISSION DATE (15) MONTH **10** DAY **10** YEAR **90**

ABSTRACT (Limit to 1000 words, i.e., approximately fifteen single-spaced typewritten lines) (16)

UPDATE REPORT - PREVIOUS REPORT DATE 4/10/89

EIIS Codes are in []

On 3/9/89 during normal operation at 100% power, engineering personnel identified a design deficiency which originated during plant construction. The deficiency would result in loss of area cooling for parts of both safety divisions of safety-related and non-safety-related electrical distribution systems as a result of loss of instrument air [LD] to the cooling system temperature control valves.

Investigation revealed that similar deficiencies did not exist for cooling of other safety-related equipment. Manual bypass valves for the affected valves were tagged open to assure cooling in the event of loss of air. Modification of the temperature control valves to cause the valve to fail-open upon loss of air will be completed later.

Failure of the valves in the closed position would have resulted in a temperature increase requiring investigation and manual opening of bypass valves. There have not been any similar design deficiency events resulting in the incorrect failure mode at this facility.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) JAMES A. FITZPATRICK NUCLEAR POWER PLANT	DOCKET NUMBER (2) 0 5 0 0 0 3 3 3	LER NUMBER (8)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		8 9	- 0 0 4	- 0 1	0 2	OF	0 3

TEXT (if more space is required, use additional NRC Form 300A's) (17)

UPDATE REPORT - PREVIOUS REPORT DATE 4/10/89

EIIIS Codes are in [ ]

Description of Event

At 1500 hours on March 9, 1989 during normal operation at 100% rated power, engineering personnel informed operating personnel that the cooling water temperature control valves for ventilation and cooling of the east and west electric bays were of a design which would "fail-closed" during any event resulting in loss of instrument air [LD].

The east and west electric bays contain portions of safety-related 4160 VAC [EA], non-safety-related 4160 VAC [EB], safety-related 600 VAC [EC], non-safety-related 600 VAC [ED], and the safety-related Uninterruptible Power Supply (UPS) [EF] and Reactor Protection System (RPS) motor generators [EF]. Loss of the instrument air system, which is not of a safety-related design and is powered from non-safety-related 600 VAC power, would result in the cooling water temperature control valves failing closed. Review of the original design indicates that the valves should be of a "fail-open" design for loss of air events.

Because this design deficiency involves both safety divisions and could potentially effect more than one emergency core cooling system, it is considered to be a reportable condition under 10 CFR 50.73(a)(2)(v) and (vi).

Air-operated temperature control valves associated with providing cooling for other safety-related systems and components were inspected to verify that valves fail open upon loss of air.

At 1900 hours on March 9, 1989 the manual bypass valves for the temperature control valves were opened and tagged to prevent closure. This action provides assurance that cooling water flow to the coolers will remain available during events that resulted in loss of instrument air.

Cause of Event

The event was caused by an error during design and construction of the plant. Review of the original design and procurement documentation indicates that the designer selected, from the vendor specification sheet, a valve described as a fail-open valve. It appears that the vendor specification sheet used by the designer contained an error or the designer misinterpreted the specification sheet. The actual valves ordered and installed were of a fail-closed design.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) JAMES A. FITZPATRICK NUCLEAR POWER PLANT	DOCKET NUMBER (2) 0 5 0 0 0 3 3 3	LER NUMBER (6)			PAGE (3)	
		YEAR 8 9	SEQUENTIAL NUMBER 0 0 4	REVISION NUMBER 0 1		
					0 3	OF 0 3

TEXT (If more space is required, use additional NRC Form 306A's) (17)

Analysis of Event

Loss of cooling water to the electric bay ventilation as a result of the temperature control valves failing closed on loss of instrument air would result in an increasing temperature in the electric bays. Routine inspection of the electric bays by operating personnel would have noted the increased area temperature and would result in investigation and correction of the cause of the increased temperature.

Reevaluation of the cooling requirements for electric bays was initiated due to an earlier problem associated, in part, with backup cooling to the electric bay ventilation system (see LER-88-009).

Corrective Action

Short-term corrective action:

1. The effected temperature control valve bypass valves were opened and tagged to provide a cooling water flow path in the event of loss of air.
2. The failure mode of other temperature control valves upon loss of air was verified to be fail-open.
3. Reevaluation of cooling water requirements confirmed that cooling is required during both normal and off-normal conditions. Testing conducted during the 1990 Refuel Outage demonstrated that cooling water flow rates during both normal and off-normal conditions are greater than the minimum required.

Long-term corrective action:

1. The design deficiency will be corrected by installation of new valves or valve operators which result in the temperature control valves failing open due to loss of air.

Additional Information

There have not been any similar events in which a design deficiency resulted in the wrong failure mode of components at this facility.