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New York Power Authority

William Fernandez II
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May 10, 1990
JAFP-90-0403

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

SUBJECT: DOCKET NO. 50-333
LICENSEE EVENT REPORT: 90-014-00
HPCI Check Valve Spring

Dear Sir:

This Licensee Event Report is submitted in accordance with 10 CFR 50.73(a)(2)(i)(B).

Questions concerning this report may be addressed to Mr. Hamilton Fish at (315) 349-6013.

Very truly yours,

WILLIAM FERNANDEZ

WF:HCF:lar

Enclosure

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

Cert No P148 799850

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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)
JAMES A. FITZPATRICK NUCLEAR POWER PLANT	0 5 0 0 0 3 3 3	1 OF 0 3

TITLE (4) Primary Containment Isolation Check Valve Inoperable Due to Missing Spring Due to Personnel Error

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 4	1 0	9 0	9 0	0 1 4	0 0	0 5	1 0	9 0		0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9): N

POWER LEVEL (10): 0 0 0

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

	20.402(b)		20.405(c)		50.73(a)(2)(iv)
	20.405(a)(1)(i)		50.36(c)(1)		50.73(a)(2)(v)
	20.405(a)(1)(ii)		50.36(c)(2)		50.73(a)(2)(vii)
	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)

	73.71(b)
	73.71(c)
	OTHER (Specify in Abstract below and in Text, NRC Form 366A)

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER	
	AREA CODE	
Hamilton C. Fish	3 1 5	3 4 9 - 6 0 1 3

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	
A	B J	V	V 0 8 5	Y							

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)

EIIS Codes are in []
On April 10, 1990, a spring was discovered to be missing from a 2 inch stop and spring assisted piston check valve (23HPI-13). The valve was opened during performance of an ASME Section XI In-Service Testing program during a plant refueling outage which started March 31, 1990. Without the spring the valve was inoperable in the horizontal valve stem orientation used for this installation. Technical Specification Table 3.7-1 designates this as a containment isolation valve. Table 4.7-2 exempts it from Type C local leak rate testing because it is water sealed. The valve is the last of two check valves in the drain line flow path to the torus from the exhaust line of the High Pressure Coolant Injection (HPCI) [BJ] turbine. The isolation function would have been performed by the upstream check valve although it is not a designated containment isolation valve. The valve was opened for maintenance in 1976 and 1977 with no record of spring removal. A current engineering review supports a conclusion that turbine exhaust pressure may not have been sufficient under some operating conditions (due to pressure drop through the steam trap and check valves) to open the check valve with the spring installed. The check valve will be rotated to a stem vertical position (which does not require a spring assist to close). The spring will also be removed from the next upstream check valve. The drain line capacity will be monitored during HPCI start-up testing during plant start-up. An engineering review will be made of the entire HPCI turbine exhaust drain system capacity including steam trap sizing.

EIIS Codes are in [ ]

Description

The plant was shutdown for a scheduled refueling and maintenance outage on March 31, 1990. On April 10 a 2 inch spring assisted stop check valve (23HPI-13) was opened for inspection. This valve was one of forty-nine check valves that were scheduled for performance of ASME Section XI In-Service Testing (IST) in accordance with procedure MP-59.45, "Maintenance Procedure for Piston Check Valves (IST)". This inspection program is also part of the response to INPO Significant Operating Event Report (SOER) 86-3, "Check Valve Failure or Deterioration".

The valve is oriented in a horizontal valve stem position. The valve vendor states that a spring is necessary for proper valve operation when the valve is installed in a horizontal position. The spring was found to be missing. Therefore, the valve is reported as being inoperable.

This is designated as a containment isolation valve for drywell penetration 222 in Technical Specification Table 3.7-1, "Primary Containment Isolation Valves". This valve is the last of two check valves located downstream of a steam trap in the drain line to the torus from the High Pressure Coolant Injection (HPCI) [BJ] turbine exhaust. As provided for in Technical Specification Table 4.7-2, "Exception to Type C Tests", this valve is not subject to leak rate testing because it is water sealed by suppression chamber water.

Cause

The absence of the spring caused the valve (23HPI-13) to be inoperable in the reverse flow direction. The physical configuration of the valve prevents the loss of the spring by moving due to water flow out of the valve body and into the piping system. The maintenance history records the performance of work on this valve in December 1976 and August 1977 in response to work request statements that the torus water was leaking (siphoning) in the reverse direction through the valve and flooding the exhaust line and turbine. The absence of the spring which was required to close the valve in the horizontal position is consistent with this complaint. The second maintenance event in August 1977 resulted in rotation of the valve by 180 degrees which still requires the presence of a spring to close the valve to prevent reverse flow. It is possible, but not recorded, that it was intended to rotate the valve 90 degrees to a vertical position which would not require the presence of a spring for proper operation. The root cause in either case was personnel error in either failing to install a spring (if none was initially present), reinstall an existing spring, or in rotating the valve 180 degrees (instead of 90 degrees to the position which would not have required a spring for proper operation).

Analysis

The inoperability of this check valve is reported under the provisions of 10 CFR 50.73(a)(2)(i)(B) as a condition prohibited by Technical Specifications. Although it is not designated by Technical Specifications as an isolation valve, the next upstream check valve 23HPI-56 would have performed this function if required. Accordingly, the isolation safety function has in fact been continuously in place, although performed by a different valve. The manual isolation feature was not affected by the missing spring. Therefore the valve remained functional.

The availability ard operability of HPCI was not affected by the inability of the final check valve to function to prevent reverse flow. Adequate removal of turbine exhaust condensate was not impaired by the absence of the spring from the valve. The upstream check valve provided adequate protection against reverse flow.

Corrective Action

1. An engineering review was performed to determine pressure drop in the turbine exhaust line. It determined that it was possible that the total pressure drop, including the spring assisted check valve, may have exceeded, under some operating conditions, the available exhaust steam pressure.

2. Prior to plant startup from the current refueling outage, the stop and spring assisted containment isolation check valve will be rotated to a stem vertical position and installed without a spring. No spring assist is required in this position. The spring will be removed from the next upstream check valve (23HPI-56) which is already in a vertical position.

3. The performance of the HPCI turbine exhaust drain system will be monitored during HPCI testing during plant start-up.

4. An engineering investigation will be conducted of the exhaust drain line capacity including sizing of the steam trap.