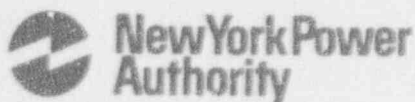


James A. FitzPatrick
Nuclear Power Plant
P.O. Box 41
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315 342-3840



Harry P. Salmon, Jr.
Resident Manager

March 26, 1993
JAFP-93-0162

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

SUBJECT: DOCKET NO. 50-333
LICENSEE EVENT REPORT: 93-005-00 - Shutdown Cooling
Isolation

Dear Sir:

This report is submitted in accordance with 10 CFR 50.73
(a)(2)(iv).

Questions concerning this report may be addressed to
Mr. Paul McGuire at (315) 349-6362.

Very truly yours,

HARRY P. SALMON, JR.

HPS:PJM:tld
Enclosure

cc: USNRC, Region 1
USNRC Resident Manager
INPO Records Center

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LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST - 500 HRS. FORWARD COMMENT (?) REGARDING BURDEN ESTIMATE TO THE RECORDS AND REVISIONS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)
James A. FitzPatrick Nuclear Power Plant

DOCKET NUMBER (2)
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PAGE (3)
OF 0 4

TITLE (4)
Shutdown Cooling Isolation

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 2	2 5	9 3	9 3	0 0 5	0 0 0	3 2	6 9	3		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 5. (Check one or more of the following) (11)

20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
20.405(a)(1)(i)	50.38(c)(1)	50.73(a)(2)(v)	73.71(c)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20.405(a)(1)(ii)	50.38(c)(2)	50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 365A)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
20.405(a)(1)(iii)	50.73(a)(2)(iii)	50.73(a)(2)(viii)(A)	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
20.405(a)(1)(iv)	50.73(a)(2)(iii)	50.73(a)(2)(viii)(B)	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(ix)	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

LICENSEE CONTACT FOR THIS LER (12)

NAME
Mr. Paul McGuire, Senior Licensing Engineer

TELEPHONE NUMBER
3 1 5 3 4 9 - 6 3 6 2

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	DAY	YEAR

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

EIIS Codes are in []

The plant was shutdown and being cooled down for a maintenance outage. At 1303 hours on 2/25/93, Residual Heat Removal/Low Pressure Coolant Injection (RHR/LPCI) [BO] pump B was started in the shutdown cooling mode and the inboard and outboard shutdown cooling suction isolation valves closed upon initial startup of the pump. The isolation was caused by a pressure transient. When the RHR pump was started, some air in the shutdown cooling suction piping was drawn into the RHR system causing a pressure pulsation which was felt by the isolation pressure switches. On 3/11/93 at 1649 hours, with the plant shutdown and in the cold condition, the RHR shutdown cooling valves isolated when the inboard isolation shutdown cooling suction valve was opened. At the same time, with the reactor vented, the RHR suction piping high pressure alarm annunciated in the Control Room. This isolation was also caused by a pressure transient as indicated by the alarm. On both occasions, the second attempt to place the RHR system into shutdown cooling was successful. The corrective action is to revise the operating procedure to require filling and venting of the RHR shutdown cooling suction lines prior to placing the RHR system in shutdown cooling.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) James A. FitzPatrick Nuclear Power Plant	DOCKET NUMBER (2) 0 5 0 0 0 3 3 3 9 3 	LER NUMBER (6)			PAGE (3)	
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TEXT (if more space is required, use additional NRC Form 366A) (17)

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Event Description

The plant was shutdown and being cooled down for a maintenance outage. At 1303 hours on February 25, 1993, while entering the shutdown cooling mode of the Residual Heat Removal/Low Pressure Coolant Injection (RHR/LPCI) [BO] system, with the B RHR pump running, the discharge valve was opened. The RHR inboard and outboard suction isolation valves closed, and the pump tripped. The valves closed due to an isolation signal (high reactor pressure, >75 psig). The isolation signal was caused by a pressure transient generated following pump start as system shutdown cooling flow to the reactor was being initiated with some air in the system.

At 1649 hours on March 11, 1993, with the plant shutdown and in the cold condition (vented), the RHR shutdown cooling system was being placed in service. The inboard suction isolation valve was opened. When the outboard suction isolation valve was opened, an isolation signal closed the two valves, and the annunciator "high reactor pressure" (>75 psig) alarmed in the Control Room. The isolation signal was caused by a pressure transient generated when the outboard isolation suction valve was opened with some air in the system.

On both occasions, the second attempt to place the system into the shutdown cooling mode was successful.

Cause of the Event

The events were caused by procedure deficiencies (Cause Code D) which resulted in pressure transients. The procedures did not require filling and venting of the RHR shutdown cooling suction lines prior to placing the RHR system in shutdown cooling. The pressure transients cause pressure switches 02PS-128A and/or 128B to actuate isolating the shutdown cooling suction valves (10MOV-17 and 10MOV-18).

Analysis of Event

These events are not safety significant because the plant was shutdown and shutdown cooling was restored. Shutdown cooling isolations occur when either 02PS-128A or 02PS-128B contacts open due to high reactor pressure. Both pressure switch instrument lines are connected to the "B" recirculation [AD] pump suction piping. The RHR/LPCI system shutdown cooling suction line is connected to the Recirculation Loop B pump suction line. The purpose of the auto isolation is to protect the low pressure RHR piping from overpressurization events. The contacts are set to open on high (increasing) reactor pressure between 50 and 75 psig.

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James A. FitzPatrick
Nuclear Power Plant

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

A height difference of 30 feet exists from the primary containment [NH] pressure suppression pool (torus) water level (about 244 feet elevation) to the shutdown cooling suction outboard isolation valve (10MOV-17 at 274 feet elevation). Any leakage through the RHR suction valves or suction relief valve (10RV-40) to either the torus or radwaste [WD] could create a void (vacuum) in the piping. Eventually, a small amount of air will be drawn into the piping via valve packing, flange unions, etc.

When 10MOV-17 and 10MOV-18 are opened, water from the reactor collapses any void created from the air inleakage causing a pressure transient that is felt at the pressure switches. In addition, any small amount of air trapped in the piping will cause pressure pulsations felt by the pressure switches when the RHR pumps start.

Another potential cause of this problem is air trapped in a high point of the instrument line which supplies 02PS-128A. Chattering of this switch (less than 5 milliseconds) has been observed when an RHR pump is started. This switch initiates an isolation signal for the suction valves. The instrument line for 02PS-128B instrument line is not configured to cause air to become trapped, and it does not chatter during the start of an RHR pump.

This event is reportable under 10 CFR 50.73 (a)(2)(iv), an event that resulted in automatic actuation of an Engineered Safety Feature.

Corrective Action

1. Shutdown cooling was placed in service in each case after resetting the isolation logic.
2. The operating procedure for RHR shutdown cooling has been revised to require that the RHR shutdown cooling suction piping be filled prior to placing the system into service in the shutdown cooling mode.
3. A modification has been initiated to eliminate the air trap in the 02PS-128A instrument piping by rerouting the piping. This will be implemented during the next refueling outage.

LICENSEE EVENT REPORT (LER)
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James A. FitzPatrick
Nuclear Power Plant

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TEXT (If more space is required, use additional NRC Form 386A's) (17)

Additional Information:

Failed Components: None

Previous Similar Events: LERs 91-011, 90-013, 90-016, 90-020 and 92-046 describes additional shutdown cooling isolations due to procedure deficiency.