

James A. FitzPatrick
Nuclear Power Plant
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Michael J. Colomb
Site Executive Officer

February 24, 1997
JAFP-97-0064

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

Subject: Docket No. 50-333
LICENSEE EVENT REPORT: LER-97-002

Shutdown Cooling Isolation

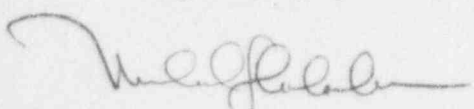
Dear Sir:

This report is submitted in accordance with 10 CFR 50.73 (a) (2) (iv), "Any event or condition that resulted in a manual or automatic actuation of any engineered safety feature (ESF), including the reactor protection system (RPS)".

There is one (1) commitment contained in this report.

Questions concerning this report may be addressed to Mr. Richard A. Plasse, Jr. at (315) 349-6793.

Very truly yours,




MICHAEL J. COLOMB

MJC:RAP:las
Enclosure

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

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EXPIRES 04/30/98

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: 60.0 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 20566-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3160-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)

James A. FitzPatrick Nuclear Power Plant

DOCKET NUMBER (2)

05000333

PAGE (3)

01 OF 04

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 NAME	DOCKET NUMBER
01	24	97	97	-- 002	-- 00	02	24	97	N/A	05000
									N/A	05000
OPERATING MODE (9)		N		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)						
POWER LEVEL (10)		000		20.2201(b)		20.2203(a)(2)(v)		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)		X 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

Mr. Richard A. Plasse, Jr., Senior Licensing Engineer

TELEPHONE NUMBER (Include Area Code)

(315) 349-6793

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).

X

NO

EXPECTED
SUBMISSION
DATE (15)

MONTH

DAY

YEAR

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

The plant was shutdown and being cooled down for a maintenance outage. At 0937 hours on 1/24/97, Residual Heat Removal/Low Pressure Coolant Injection (RHR/LPCI) [BO] pump D 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, air in the shutdown cooling suction piping caused a pressure pulsation which was felt by the isolation pressure switches. Reactor vessel pressure was verified to be 4.5 psig at the time of the event. After reventing the system, the shutdown cooling system was successfully placed in service at 1256 hours.

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

EIIIS Codes are in []

EVENT DESCRIPTION

The plant was shutdown and being cooled down for maintenance. At 0937 hours on 1/24/97, Residual Heat Removal/Low Pressure Coolant Injection (RHR/LPCI) [BO] pump D 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 valves closed due to an isolation signal (high reactor pressure, greater than 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. Reactor vessel pressure was verified to be 4.5 psig at the time of the event. After reventing the system, the shutdown cooling system was successfully placed in service at 1256 hours.

CAUSE OF THE EVENT

The event was caused by a pressure transient. The pressure transients cause pressure switches 02PS-128A and/or 128B to actuate isolating the shutdown cooling suction valves (10MOV-17 and 10MOV-18). The cause of the pressure transient appears to be insufficient venting of the air in the suction piping due to the configuration of the vent path on the bottom of the piping. Previous corrective actions completed to eliminate air from the system have not been fully successful.

ANALYSIS OF EVENT

This event is 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.

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 valves (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, air will be drawn into the piping via valve packing, flange unions, etc.

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

The plant has experienced shutdown cooling isolations in the past. Several procedural improvements were implemented to improve system venting. A modification to the pressure instrument sensing line to prevent air traps has been completed (LER-93-005). In June 1993, the operating procedure was revised to vent the shutdown cooling suction piping in an effort to eliminate shutdown cooling isolations (LER-93-005). This included a requirement to cycle the inboard and outboard shutdown cooling suction isolation valves. Due to the configuration of the piping (i.e. lack of a high point vent) difficulty in venting the piping has been experienced. Due to an inadequate vent path, air can remain in the shutdown cooling suction piping. Difficulty in venting the piping was documented in a Deficiency/Event Report (DER) in June 1995. The response to the DER determined that an inadequate vent path existed, allowing air to remain in the shutdown cooling suction piping. This DER documented the trip of the Reactor Water Cleanup (RWC) [CE] system due to initiation of shutdown cooling. No shutdown cooling isolation was experienced at that time. The recommendation made was to install a high point vent at the top of the suction piping. This recommendation was given a low priority due to the absence of shutdown cooling isolation problems since 1993.

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 instrument tubing will cause pressure pulsations felt by the pressure switches when the RHR pumps start.

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 ACTIONS

1. Shutdown cooling was placed in service after resetting the isolation logic and refilling and venting the system in accordance with plant procedures.
2. A modification has been initiated to provide a high point vent to improve the ability to vent the RHR shutdown cooling suction piping. This will be implemented prior to startup from the next refueling outage. The Authority will monitor the effectiveness of this modification and will evaluate additional corrective actions, if necessary.

ADDITIONAL INFORMATION

Failed Components: None

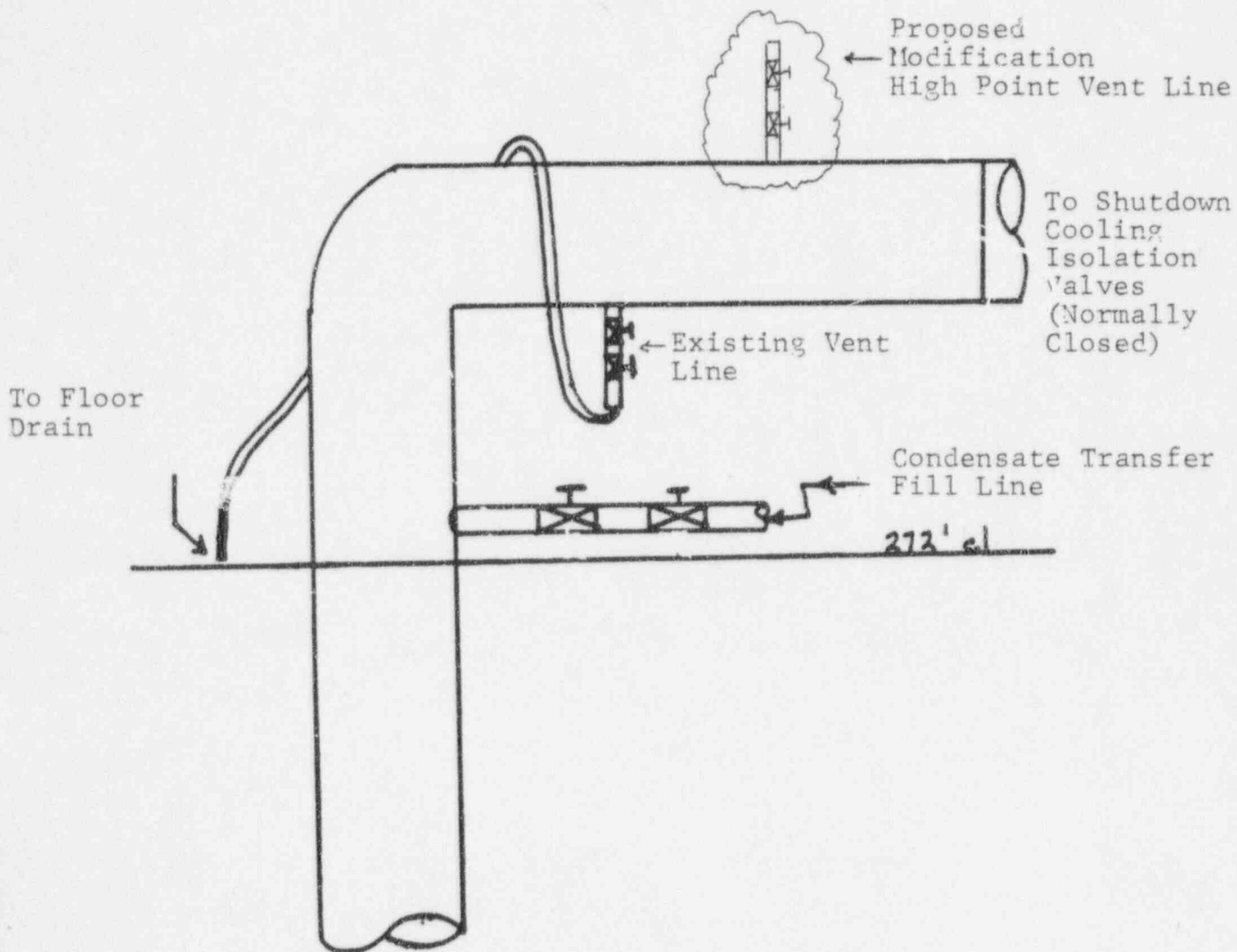
Previous Similar Events: LERs 93-005, 91-011, 90-013, 90-016, 90-020, and 92-046 describes additional shutdown cooling isolations.

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

FIGURE 1



Shutdown Cooling Suction Piping

Attachment 1

LER-97-002

Commitment Status

Number	Commitment	Due Date
JAFP-97-0064-01	A modification has been initiated to provide a high point vent to improve the ability to vent the RHR shutdown cooling suction piping. This will be implemented prior to the next refueling outage. The authority will monitor the effectiveness of this modification and will evaluate additional corrective actions, if necessary.	Prior to Restart from RFO-13.