



**Entergy Nuclear Northeast
Entergy Nuclear Operations, Inc.**

James A. FitzPatrick NPP
P.O. Box 110
Lycoming, NY 13093
Tel 315-349-6024 Fax 315-349-6480

Brian R. Sullivan
Site Vice President – JAF

JAFP-16-0175
November 17, 2016

United States Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555-0001

Subject: LER: 2016-005, Degraded Damper Actuator Prevented Control Room
Ventilation Exhaust Fan Start


James A. FitzPatrick Nuclear Power Plant
Docket No. 50-333
License No. DPR-59

Dear Sir or Madam:

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

There are no new regulatory commitments contained in this report.

Questions concerning this report may be addressed to Mr. William Drews, Regulatory Assurance Manager, at (315) 349-6562.

Sincerely,
 (Acting for Sullivan)
Brian R. Sullivan
Site Vice President

BRS/WD/mh

Enclosure: JAF LER 2016-005, Degraded Damper Actuator Prevented Control Room
Ventilation Exhaust Fan Start

cc: USNRC, Region I Administrator
USNRC, Project Manager
USNRC, Resident Inspector
INPO Records Center (ICES)



LICENSEE EVENT REPORT (LER)

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollections.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. FACILITY NAME

James A. FitzPatrick Nuclear Power Plant

2. DOCKET NUMBER

05000333

3. PAGE

1 OF 4

4. TITLE

Degraded Damper Actuator Prevented Control Room Ventilation Exhaust Fan Start

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
9	19	2016	2016	005	00	11	17	2016	N/A	N/A
9. OPERATING MODE			11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: <i>(Check all that apply)</i>							
1			<input type="checkbox"/> 20.2201(b)		<input type="checkbox"/> 20.2203(a)(3)(i)		<input type="checkbox"/> 50.73(a)(2)(ii)(A)		<input type="checkbox"/> 50.73(a)(2)(viii)(A)	
			<input type="checkbox"/> 20.2201(d)		<input type="checkbox"/> 20.2203(a)(3)(ii)		<input type="checkbox"/> 50.73(a)(2)(ii)(B)		<input type="checkbox"/> 50.73(a)(2)(viii)(B)	
			<input type="checkbox"/> 20.2203(a)(1)		<input type="checkbox"/> 20.2203(a)(4)		<input type="checkbox"/> 50.73(a)(2)(iii)		<input type="checkbox"/> 50.73(a)(2)(ix)(A)	
			<input type="checkbox"/> 20.2203(a)(2)(i)		<input type="checkbox"/> 50.36(c)(1)(i)(A)		<input type="checkbox"/> 50.73(a)(2)(iv)(A)		<input type="checkbox"/> 50.73(a)(2)(x)	
10. POWER LEVEL			<input type="checkbox"/> 20.2203(a)(2)(ii)		<input type="checkbox"/> 50.36(c)(1)(ii)(A)		<input type="checkbox"/> 50.73(a)(2)(v)(A)		<input type="checkbox"/> 73.71(a)(4)	
			<input type="checkbox"/> 20.2203(a)(2)(iii)		<input type="checkbox"/> 50.36(c)(2)		<input type="checkbox"/> 50.73(a)(2)(v)(B)		<input type="checkbox"/> 73.71(a)(5)	
			<input type="checkbox"/> 20.2203(a)(2)(iv)		<input type="checkbox"/> 50.46(a)(3)(ii)		<input type="checkbox"/> 50.73(a)(2)(v)(C)		<input type="checkbox"/> 73.77(a)(1)	
			<input type="checkbox"/> 20.2203(a)(2)(v)		<input type="checkbox"/> 50.73(a)(2)(i)(A)		<input type="checkbox"/> 50.73(a)(2)(v)(D)		<input type="checkbox"/> 73.77(a)(2)(i)	
			<input type="checkbox"/> 20.2203(a)(2)(vi)		<input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)		<input type="checkbox"/> 50.73(a)(2)(vii)		<input type="checkbox"/> 73.77(a)(2)(ii)	
					<input type="checkbox"/> 50.73(a)(2)(i)(C)		<input type="checkbox"/> OTHER		Specify in Abstract below or in NRC Form 366A	

12. LICENSEE CONTACT FOR THIS LER

LICENSEE CONTACT

Mr. William Drews, Regulatory Assurance Manager

TELEPHONE NUMBER (Include Area Code)

315-349-6562

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

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
X	VI	CDMP	H260	N					

14. SUPPLEMENTAL REPORT EXPECTED

☐ YES (If yes, complete 15. EXPECTED SUBMISSION DATE)
 ☒ NO

15. EXPECTED SUBMISSION DATE

MONTH	DAY	YEAR

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

On September 19, 2016, the Control Room Ventilation exhaust fan 70FN-4A did not start when it was being placed into service. The fan outlet isolation damper actuator 70MOD-108A(OP) failed to give the fully-open permissive signal to start the fan. Gentle pressure on the actuator linkage allowed the fan to start. Prior to this, on August 16, 2016, during post-maintenance testing, 70FN-4A did not start. Troubleshooting adjusted the linkage and the fan started as appropriate. However, the intermittent fan start issue was caused by the degraded damper actuator 70MOD-108A(OP). Corrective action replaced 70MOD-108A(OP).

This event is reportable per 10 CFR 50.73(a)(2)(i)(B) as a condition prohibited by Technical Specifications.

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

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		YEAR	SEQUENTIAL NUMBER	REV NO.
James A. FitzPatrick Nuclear Power Plant	05000 – 333	2016	– 005	– 00

NARRATIVE**Background**

The James A. FitzPatrick Nuclear Power Plant (JAF) Control Room Air Conditioning (AC) System [EIS identifier: VI] and the Control Room Emergency Ventilation Air Supply (CREVAS) System [VI] (a mode of the Control Room AC) provides a protected environment from which occupants can control the plant during normal conditions and following an uncontrolled release of radioactivity, hazardous chemicals, or smoke.

The Control Room AC System and CREVAS System consists of two redundant subsystems that provide recirculated control room air. A single subsystem is sufficient to maintain a suitable control room environment for a sustained occupancy of 20 persons. Each subsystem consists of air handling units, recirculation exhaust fans, air handling unit fans, ductwork, dampers, and associated Instrumentation and controls; and, each CREVAS subsystem consists of a series of filters, a control room emergency air supply fan, valves or dampers, doors, barriers and instrumentation.

The recirculation / exhaust fans consist of two full capacity fans for the Control Room. The intake air supply is mixed with air from one of the recirculation / exhaust fans before it is recirculated back to the room. One Control Room exhaust fan runs at all times to support the normal or emergency mode while the other fan is on standby. Normally these exhaust fans are swapped manually. An automatic start function occurs only if the running exhaust fan stops.

This Licensee Event Report (LER) addresses the ability to start one of the Control Room recirculation / exhaust fans (70FN-4A).

Event Description

On September 19, 2016, JAF was at 54 percent power when the Control Room Ventilation recirculation / exhaust fan lineup was being changed to place 70FN-4A inservice when it did not start as expected. A second attempt to start the fan was successful when gentle pressure was applied to assist the linkage between the damper (70MOD-108A) and motor actuator (70MOD-108A(OP)). This damper is located on the outlet to 70FN-4A.

To maintain the operability of 70FN-4A, it was placed in service as the lead fan with 70FN-4B in standby. In addition, a manual Operator compensatory action was developed to have an Operator dispatched to assist the damper linkage in the event that an exhaust fan does not start. This compensatory action requires a short transit from the Control Room to the Control Room Ventilation Equipment room.

Event Analysis

The switch in the Control Room begins the sequence to start the fan (70FN-4A) by opening its associated damper (70MOD-108A). The circuit logic starts the fan after a time delay so the damper has time to open; but, it only starts the fan if there is a permissive signal that the damper has fully opened. The open permissive signal originates from a position switch integral / internal to the damper actuator (70MOD-108A(OP)) itself. When gentle pressure was applied to assist the damper linkage during the event, it caused the actuator to complete its motion and close the contact for the permissive signal and initiate the fan start.

Prior to this event, on August 16, 2016, 70FN-4A did not start during post maintenance testing. In addition, the time delay start logic relay (70-62-1CRVA04) was found out-of-tolerance and damper position indication in the Control Room was dual. Indication in the Control Room for damper position comes from position switches 70PNS-108A1 and 70PNS-108A2. However, these position switches are for indication only and they do not

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provide the permissive signal. The corrective actions were to make a minor adjustment to the damper linkage, lubricate and clean moving parts, and re-calibrate 70-62-1CRVA04. The damper was tested and 70FN-4A started successfully with appropriate Control Room damper position indication. The damper actuator 70MOD-108A(OP) was not replaced at that time.

After the event on September 19, 2016, the damper actuator 70MOD-108A(OP) was replaced. Troubleshooting identified that the old damper actuator was slow / degraded compared to the new damper actuator. If 70MOD-108A(OP) were slow or did not fully actuate the internal position switch then 70FN-4A would not receive a permissive signal to start.

The inconsistent and degrading damper actuator performance began to affect system operability on August 16, 2016. This deficiency prevented the reliability of one of two redundant subsystems of the Technical Specification (TS) 3.7.4 Control Room AC System and TS 3.7.3 CREVAS system. If one CREVAS subsystem is inoperable then Required Action A.1 of TS 3.7.3 requires that it be restored within 7 days. If the completion time of Condition A were not met then Required Action C.1 requires that the plant be in Mode 3 within 12 hours and subsequently be in Mode 4 within 36 hours. Similarly, if one Control Room AC System is inoperable then Required Action A.1 of TS 3.7.4 requires that it be restored within 30 days. If the completion time of Condition A were not met then Required Action C.1 requires that the plant be in Mode 3 within 12 hours and subsequently be in Mode 4 within 36 hours. In both cases, the allowed out-of-service time was exceeded. This is a condition prohibited by Technical Specifications; reportable under 10 CFR 50.73(a)(2)(i)(B).

Cause

Degraded damper actuator 70MOD-108A(OP) affected the ability of the Control Room Ventilation recirculation / exhaust fan 70FN-4A to start reliably.

Similar Events

There were no other identical failures of 70MOD-108A(OP) historically. However, similar ventilation damper actuator problems have occurred on other components.

April 8, 2005: The relay room exhaust isolation damper 70MOD-102A did not reach full open before the time delay relay timed out. A new damper actuator was installed. (CR-JAF-2005-01396)

June 7, 2007: The Control Room air handling unit 70AHU-3A starts but the damper 70MOD-106A did not appear to be opening. This was caused by the damper actuator and was corrected when it was replaced. (CR-JAF-2007-02124)

August 5, 2011: The control room supply fan 70AHU-3A discharge damper 70MOD-106A will not open on initiation of fan start. This was caused by inadequate damper and damper linkage lubrication which increased the resistance to proper damper actuator performance. (CR-JAF-2011-04043)

FAILED COMPONENT IDENTIFICATION:

Manufacturer:	Honeywell Inc
Manufacturer Model Number:	M8185D1006
NPRDS Manufacturer Code:	H260
NPRDS Component Code:	VALVOP
FitzPatrick Component ID:	70MOD-108A(OP)

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Corrective Actions**Completed Actions**

- 70MOD-108A(OP) replaced and tested.
- A manual Operator action was evaluated and incorporated into procedure OP-55B and ST-18.

Future Actions

- Evaluate changes to the preventative maintenance activities for 70MOD-108A(OP).
- Evaluate the need to replace similar damper actuators.

Safety Significance

There was no actual radiological or nuclear safety consequence during this event.

The condition where 70FN-4A would not reliably start existed between August and September 2016. During this time, the "B" Control Room exhaust fan remained available to perform the required safety function. This deficiency affected the redundant "A" Control Room exhaust fan to start reliably; either, manually or automatically in response to a failure of the "B" exhaust fan.

If the "A" Control Room exhaust fan was needed, and did not start, a plant Operator could manually correct the deficiency by traveling to the damper actuator location and locally assisting the damper linkage. When the deficiency was identified in September 2016, this manual Operator action was evaluated and accepted as a compensatory measure. Based on the calculated accumulated doses which could be received in these areas for the various design basis accidents combined with the relatively short period of time needed to perform this compensatory action, the increase in dose that could be incurred during the performance of this compensatory action would be negligible when compared to the dose that would be received by maintaining continuous occupancy in the Control Room.

References

- Condition Report: CR-JAF-2016-03593, September 19, 2016
- Condition Report: CR-JAF-2016-03116, August 16, 2016