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Lawrence M. Coyle
Site Vice President – JAF

JAFP-14-0066
June 2, 2014

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

Subject: LER: 2014-001, Inoperable "A" EDG Subsystem and Concurrent Trip of
the "B" Safety Pump Room Ventilation Fan

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)(v)(A) and (D).

There are no commitments contained in this report.

Questions concerning this report may be addressed to Mr. Chris M. Adner, Regulatory Assurance Manager, at (315) 349-6766.

Sincerely,

A handwritten signature in black ink that reads "Lawrence M. Coyle".

Lawrence M. Coyle
Site Vice President

LMC/CMA/ds

Enclosure(s): JAF LER 2014-001, Inoperable "A" EDG Subsystem and Concurrent Trip of the
"B" Safety Pump Room Ventilation Fan

cc: USNRC, Region 1
USNRC, Project Directorate
USNRC, Resident Inspector
INPO Records Center (ICES)



LICENSEE EVENT REPORT (LER)

(See Page 2 for required number of digits/characters for each block)

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1. FACILITY NAME

James A. FitzPatrick Nuclear Power Plant

2. DOCKET NUMBER

05000333

3. PAGE

1 OF 5

4. TITLE

Inoperable "A" EDG Subsystem and Concurrent Trip of the "B" Safety Pump Room Ventilation Fan

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
04	01	2014	2014	001	00	06	02	2014	N/A	N/A
									N/A	N/A

9. OPERATING MODE	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)			
1	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)
	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)
100	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)
	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input checked="" type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)
	<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)(C)	<input type="checkbox"/> OTHER
	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.73(a)(2)(i)(B)	<input checked="" type="checkbox"/> 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

LICENSEE CONTACT: Mr. Chris M. Adner, Regulatory Assurance Manager
 TELEPHONE NUMBER (Include Area Code): 3153496766

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
X	MK	49	G080	N					

14. SUPPLEMENTAL REPORT EXPECTED	15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR
<input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO				

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

At 0630 on the morning of April 1, 2014, with James A. FitzPatrick Nuclear Power Plant (JAFNPP) operating at 100 percent power and the "A" Emergency Diesel Generator (EDG) subsystem inoperable for maintenance, a control room alarm annunciated indicating a problem with the "B" division safety pump room ventilation system. At 0645 a field operator identified the exhaust fan for the "B" division safety pump room ventilation system had tripped on thermal overload. Ventilation loss when the pumps are in service would degrade the long term performance of residual heat removal service water (RHRSW) and emergency service water (ESW) systems; degradation of the "B" ESW pump would degrade the performance of the "B" EDG subsystem. The overload relay was reset at 0704 and the fan automatically started restoring ventilation; time out of service was thirty-four minutes. The ambient temperature limit in "B" division safety pump room was never challenged.

The equipment failure evaluation has determined preliminary cause of the tripping of the fan to be the weakening of the Bi-Metal trip element that is heated by the current that causes the trip. This component will be replaced and the unit tested to confirm cause.



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CONTINUATION SHEET**

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NARRATIVE

Overview

This LER reports concurrent inoperability of "A" EDG subsystem [EK] and "B" EDG subsystem [EK] for approximately 34 minutes. The "A" EDG subsystem was declared inoperable as a consequence of a failure of a breaker to cycle during a monthly full load surveillance test. During the inoperability of "A" EDG subsystem, the "B" division safety pump room exhaust fan tripped. The operation of this fan supports the operability of equipment in the "B" division safety-related pump room [MK] which contains the "B" and "D" residual heat removal service water (RHRSW) [BI] pumps and the "B" emergency service water (ESW) [BI] pump. The operability of the "B" division emergency diesel generators (EDG) [EK] depends on the operability of the "B" ESW system. Residual heat removal (RHR) [BO] containment cooling mode and shutdown cooling (decay heat removal) mode operability is dependent upon operability of the RHRSW system.

In summary, the failure of a breaker to cycle affected the operability of "A" EDG subsystem and the tripping of an exhaust fan affected the operability of the "B" EDG subsystem. This could potentially lead to an event or condition that could have prevented fulfillment of a safety function, as reported under 10 CFR 50.73(a)(2)(v)(A) and (D). However, as discussed in this LER, the "B" EDG subsystem would have been ultimately capable of performing its safety function. Thereby, this condition would not have challenged nuclear or radiological safety.

Event Description

On 4/1/2014 JAFNPP was in mode 1 at 100% power with the "A" side EDG subsystem inoperable due to a breaker failing to cycle during a monthly full load surveillance test. This condition was identified on 3/31/2014 at 23:29 and it existed prior to the event that is the subject of this LER. The previous successful performance of this surveillance was on 2/24/2014. This condition was corrected and the "A" EDG subsystem [EK] was tested satisfactorily using the monthly full load surveillance test and declared operable on 4/1/2014 at 1954.

At 0630 On 4/1/2014 a control room alarm associated with the "B" safety pump room ventilation system was received. Field operators were dispatched and it was identified, at the local ventilation panel, that an alarm window was lit for the "B" division safety pump room exhaust fan, 73FN-3B. Further investigation, using the associated annunciator response procedure, identified the "B" phase thermal overload on motor control center 71MCC-262-OD3 had tripped. The operator reset the "B" phase thermal overload. The breaker contactor picked up at 7:04 and the fan was verified to be running and functional. The fan was considered non-functional for 34 minutes.

Following reset of the thermal overload, the fan was monitored for proper operation with no problems noted. After "A" EDG subsystem was returned to operable status, thermography and current readings were taken in 71MCC-262-OD3(MC) and they were satisfactory. The current readings were approximately 2.8 amps across all three phases which is approximately 86% of the rated trip set point of a new overload relay that is rated for 3.22 amps. There were no spikes in voltage during the time of the breaker trip.



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Technical Specification Review

As a consequence of 73FN-3B tripping, Technical Specification (TS) Limiting Condition of Operation (LCO) 3.7.1 (RHRSW) and 3.7.2 (ESW and Ultimate Heat Sink) were required to be reviewed for the affected supported systems. It was determined that with 73FN-3B not functional, 10P-1B (RHRSW Pump B), 10P-1D (RHRSW Pump D) and 46P-2B (ESW Pump B) were inoperable during the period of time that 73FN-3B was non-functional.

TS LCO 3.7.1 requires restoration of the affected RHRSW subsystem in 7 days. Since the "A" EDG subsystem was inoperable at the time of this event, TS LCO 3.8.1 Condition B.2 requires declaring the supported required systems of the "A" EDG subsystem inoperable within 4 hours. Since 73FN-3B was returned to functional status in 34 minutes these actions were met or not required.

TS LCO 3.7.2 requires restoration of the affected ESW subsystem in 7 days and it requires entry in LCO 3.8.1 "AC Sources –Operating). Since the "A" EDG subsystem was inoperable at the time of this event, TS LCO 3.8.1 Condition E was applicable. This condition requires restoring one EDG subsystem to operable within 2 hours. Since 73FN-3B was returned to functional status in 34 minutes this action was met.

EVENT ANALYSIS

The event analysis demonstrates that due to the design of the Safety Pump Room ventilation, and credible Operator Action(s), the supported safety system pumps and ultimately the "B" EDG subsystem would have fulfilled its safety function.

Safety Pump Room Ventilation Design

Outside air is supplied to the Screenwell Building general area by redundant (safety-related) supply fans 73FN-2A and -2B during normal and post-LOCA shutdown of the plant in the event of a loss of offsite power (LOOP). Each ESW/RHRSW Safety Pump Room has its own dedicated ventilation system. Supply air for each ESW pump room is drawn from the Screenwell Building general area from two (2) – 48" X 36" screened louvers at approximately EL. 255'-0" near the floor level and fitted on the East wall. The air is drawn by mechanical means through the louvered opening by propeller type exhaust fans 73FN-3A and -3B for the North and South Safety Pump Rooms, respectively. The air is vertically discharged above the pump room ceiling at elevation 272'-0" in the Screenwell Building general area. The Safety Pump Room ventilation fans (73FN-3A and -3B) have a capacity of 12,750 cfm each, and are safety-related, QA Category 1. They are supplied power from the emergency power source.

During normal plant operation, Screenwell Building supply fans operate in conjunction with recirculation/exhaust dampers to maintain the ambient temperature in the range of 50 – 80 degrees F. Safety-related fans (73FN-2A & -2B) located on the Screenwell Building roof start automatically when the ambient temperature exceeds 80 degrees F. The Safety Pump Rooms are equipped with temperature switches that



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annunciate when ambient temperatures exceed 104 degrees F. Exhaust fans 73FN-3A(B) start automatically when the temperature exceeds 80 degrees F. High Temperature exceeding 104 degrees F is annunciated on the local panel and Main Control room Panel 09-75. The alarm on the Main Control Room panel 09-75 will initiate Annunciator Response Procedure (ARP) ARP 09-75-2-7 or ARP 09-75-1-7.

The postulated worst case Design Basis Accident conditions for the Safety Pump Room Ventilation System is post-LOCA with concurrent LOOP. The pumps (RHRSW and ESW) in one or both Safety Pump Rooms would be required for safe-shutdown of the plant under these conditions, and therefore would be required to start and run.

Operator actions, consistent with NRC Information Notice 97-78: Crediting of Operator Actions in Place of Automatic Actions and Modifications of Operator Actions, Including Response Times, have been previously developed and accepted which will enable the "B" subsystem to perform its safety function in the event of a possible scenario involving the "B" division safety pump room exhaust fan tripping. Operators have been pre-trained on these procedure(s) and equipment has been pre-staged in the vicinity of the "B" division safety pump room. Accordingly, this condition would not have challenged nuclear or radiological safety.

CAUSE OF EVENT

The Safety Pump room exhaust fan motor breaker is designed to trip during instances of high voltage or high current. During this event on 4/1/14 there was no evidence that the breaker ever saw a high voltage or high current signal. A review of the bus voltage that supplies this component did not identify any spikes in voltage during the time of the breaker trip.

A review of the maintenance history was completed and the last activity done on the breaker was preventive maintenance (PM) under WO 51192637 in 2008. As a result of the PM, the contact coil was replaced due to low readings. The preventive maintenance on the coil is next scheduled to be completed on 9/21/2018. This PM is set at a frequency of 10 years and in accordance with the PM Template.

It was identified that this breaker had tripped several times before in 2012 (reference CR-JAF-2012-5642). This failure occurred during an outage when high offsite voltage was documented to exist. The preventive maintenance template describes that the Trip Relay is not designed to trip multiple times because of weakening of the Bi-Metal that is heated by the current that causes the trip.

An equipment failure evaluation determined that the trips on high voltage in 2012, contributed to this condition. Even though the breaker is designed to trip in these conditions, the trip relay can be weakened by multiple trips that could lead to nuisance trips later in the life of the breaker. The weakened bi-metal was determined to be the most probable cause of the fan failure to run. The trip relay will be replaced and tested to confirm this cause. This is expected to be completed under WO 381989 which is currently scheduled for completion by June 18, 2014.



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FAILED COMPONENT IDENTIFICATION:

Manufacturer: General Electric
 Manufacturer Model Number: CR123C379A (Thermal Overload Relay Heater)
 NPRDS Manufacturer Code: G080
 NPRDS Component Code: CKTBRK
 FitzPatrick Component ID: 71MCC-262-OD3(MC)

CORRECTIVE ACTIONS

Completed Actions

- Thermal overload reset
- Current draw and temperature of overload determined to be satisfactory
- Equipment Failure Evaluation completed to determine most likely cause

Future Actions

- Replace the thermal overload relay in 71MCC-262-OD3(MC) and test removed relay to confirm cause

SAFETY SIGNIFICANCE

The failure of the "B" Safety Pump room ventilation system fan to run did not challenge nuclear or radiological safety. No actual loss of safety function occurred. The supported "B" ESW pump would have started and provided cooling to essential loads allowing the "B" EDG subsystem and other essential cooling systems to perform their required safety functions. Similarly, The RHRSW pumps could have been placed in service as required to support containment cooling and decay heat removal.

SIMILAR EVENTS

None

REFERENCES

- Condition Report: CR-JAF-2014-01575 Equipment Apparent Cause Evaluation