FENOC™
FirstEnergy Nuclear Operating Company

Perry Nuclear Power Plant
P.O. Box 97
10 Center Road
Perry, Ohio 44081

David B. Hamilton
Vice President

440-280-5382

December 1, 2017
L-17-0318

10CFR50.73(a)(2)(v)(B)
10CFR50.73(a)(2)(v)(C)
10CFR50.73(a)(2)(v)(D)

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT:
Perry Nuclear Power Plant
Docket No. 50-440, License No. NPF-58
Licensee Event Report Submittal

Enclosed is Licensee Event Report (LER) 2017-006, "Loss of Safety Function due to the Inoperability of Both Trains of Motor Control Center Ventilation." There are no regulatory commitments contained in this submittal.

If there are any questions or if additional information is required, please contact Mr. Nicola Conicella, Manager – Regulatory Compliance, at (440) 280-5415.

Sincerely,

David B. Hamilton
Vice President

Enclosure:
LER 2017-006

cc: NRC Region III Administrator
NRC Resident Inspector
NRR Project Manager

Enclosure
L-17-318

LER 2017-006

NRC FORM 366 (04-2017) U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

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

(See NUREG-1022, R.3 for instruction and guidance for completing this form http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 3/31/2020

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 Information Services Branch (T-2 F43), 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.

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Perry Nuclear Power Plant	05000-440	1 OF 3

4. TITLE:

Loss of Safety Function due to the Inoperability of Both Trains of Motor Control Center Ventilation

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
10	04	2017	2017	006	00	12	01	2017		05000
									FACILITY NAME	DOCKET NUMBER
										05000

9. OPERATING MODE	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: *(Check all that apply)*			
1	☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
	☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
	☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
	☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
10. POWER LEVEL	☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
	☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☒ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
100	☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☒ 50.73(a)(2)(v)(C)	☐ 73.77(a)(1)
	☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☒ 50.73(a)(2)(v)(D)	☐ 73.77(a)(2)(i)
	☐ 20.2203(a)(2)(vi)	☐ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(vii)	☐ 73.77(a)(2)(ii)
		☐ 50.73(a)(2)(i)(C)	☐ OTHER Specify in Abstract below or in NRC Form 366A	

12. LICENSEE CONTACT FOR THIS LER

LICENSEE CONTACT:	TELEPHONE NUMBER *(Include Area Code)*
George Dujanovic – Regulatory Compliance	440-280-5200

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
D	VJ	FAN	A220	Y					

14. SUPPLEMENTAL REPORT EXPECTED	15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR
☐ YES *(If yes, complete 15. EXPECTED SUBMISSION DATE)* ☒ NO				

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

On October 4, 2017 at 0155 hours, while in Mode 1 at 100 percent rated thermal power, inoperability of both A and B trains of Motor Control Center, Switchgear, and Miscellaneous Electrical Equipment Areas Heating, Ventilation, and Air Conditioning System and Battery Rooms Exhaust System (M23/24) occurred. Train A was shutdown and declared inoperable based on excessive drive belt noise and belt malfunction. Train B was inoperable due to ongoing maintenance on its associated chilled water system. The combination of inoperability resulted in a loss of safety function. Technical Specification (TS) 3.0.3 was entered per plant procedures, and at 0250 hours a plant shutdown was commenced. At 0620 hours, the A train of M23/24 was declared operable following belt replacement and TS 3.0.3 was exited. The plant was restored to 100 percent rated thermal power at 0804 hours.

The cause was determined to be inadequate procedural guidance in that the "general tensioning" method described in plant maintenance procedure, V-belt and Sheave Maintenance, is insufficient for restoring components to a reliable condition. Corrective action includes revising the procedure for correct tensioning guidance.

The safety significance of this event is considered to be very small. This event is being reported in accordance with 10CFR50.73(a)(2)(v)(B), 10CFR50.73(a)(2)(v)(C), and 10CFR50.73(a)(2)(v)(D) as an event or condition that could have prevented the fulfilment of a safety function.

NARRATIVE

Energy Industry Identification System (EIIS) codes are identified in the text as [XX].

INTRODUCTION

On October 4, 2017, at 0155 hours, while in Mode 1 and 100 percent rated thermal power, inoperability of both trains of Motor Control Center, Switchgear, and Miscellaneous Electrical Equipment Areas Heating, Ventilation, and Air Conditioning System and Battery Rooms Exhaust System (M23/24) occurred. This resulted in a loss of safety function.

This event is being reported in accordance with 10CFR50.73(a)(2)(v)(B), 10CFR50.73(a)(2)(v)(C), and 10CFR50.73(a)(2)(v)(D) as an event or condition that prevented the fulfilment of a safety function.

EVENT DESCRIPTION

On October 4, 2017 at 0155 hours, with the plant in Mode 1 and at 100 percent rated thermal power, M23/24 Train A was shutdown and declared inoperable due to a report of excessive drive belt noise and malfunctioning belts on the A supply fan [AHU]. Concurrently, Control Complex Chilled Water (CCCW) Chiller B [KM] was out of service for planned maintenance resulting in Train B of M23/24 being inoperable. This combination resulted in a loss of safety function due to the impact to Division 1,2, and 3 electrical switchgear.

At 0200 hours, M23/24 was shifted from train A to train B. CCCW Chiller C was already running and had been started at 2225 hours on 10/03/17. Cooling to the affected areas through the B train of M23/24 was maintained through use of the nonsafety related CCCW Chiller C, which is able to supply either train with chilled water.

Due to the inoperability of both trains of M23/24, actions were taken in LCO 3.8.7 for Alternating Current (AC) [EA] and Direct Current (DC) [EJ] Distribution Systems, LCO 3.8.4 for DC Sources, LCO 3.8.1 for AC Sources, and the associated support systems. The High Pressure Core Spray System (HPCS) [BG] was also declared inoperable, which is a single train safety system, and therefore an additional loss of safety function.

On October 04, 2017 at 0553 hours, event notification EN# 53000 was made to the NRC Operations Center in accordance with 50.72(b)(2)(i) & 50.72(b)(3)(v)(D) for initiation of plant shutdown and loss of safety function. Train A of M23/24 was declared operable at 0620, following belt replacement, and TS 3.0.3 was exited. The plant was restored to 100 percent rated thermal power at 0804 hours.

At 0926 hours, the event notification reporting requirements were updated to include 50.72(b)(3)(v)(B) and 50.72(b)(3)(v)(C), in addition to 50.72(b)(3)(v)(D).

CAUSE

With the B train of the M23 system out of service for maintenance, the belt malfunction on the A train supply fan resulted in a loss of safety function and entry into Technical Specification 3.0.3. It was determined that two V-belts on the M23 A supply fan malfunctioned due to inadequate tensioning. The cause was determined to be inadequate procedural guidance in that the "general tensioning" method supplied in plant maintenance procedure, V-belt and Sheave Maintenance, which requires only a visual check of belt sag, is insufficient for restoring components utilizing V-belts to a reliable operating condition.

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Perry Nuclear Power Plant Unit 1	05000-440	2017	- 006	- 00

NARRATIVE

EVENT ANALYSIS

A Probabilistic Risk Assessment (PRA) evaluation was performed. The analysis indicates that the event resulted in a very small change to overall plant risk with a change (delta) in core damage frequency (CDF) of 1.78E-09/yr, and a change (delta) in the large early release frequency (LERF) of 1.11E-09/yr. The delta CDF and delta LERF values are well below the acceptable thresholds of 1.0E-06/yr and 1.0E-07/yr, respectively, as discussed in Regulatory Guide 1.174. Therefore, the safety significance of this event is considered to be very small.

CORRECTIVE ACTIONS

Corrective actions in response to the event include: revising the maintenance procedure to use the Force Deflection Method for tensioning of the belts; replacing the M23 A supply fan drive belts and restoring M23/24 to operable; and performing an additional check of belt tension on the same train exhaust fan along with the opposite train supply and exhaust fans. Additionally, the belts for the Auxiliary Building ventilation [VF] exhaust fans will be checked.

PREVIOUS SIMILAR EVENTS

A review of LERs and the Corrective Action database for the past three years identified no similar events.

COMMITMENTS

There are no regulatory commitments contained in this report. Actions described in this document represent intended or planned actions, are described for the NRC's information, and are not regulatory commitments.