



FirstEnergy Nuclear Operating Company

5501 North State Route 2
Oak Harbor, Ohio 43449

Mark B. Bezilla
Vice President, Nuclear

419-321-7676

October 7, 2019

L-19-211

10 CFR 50.73

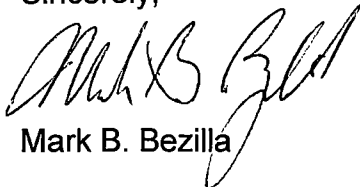
ATTN: Document Control Desk
United States Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Subject:
Davis-Besse Nuclear Power Station, Unit 1
Docket Number 50-346, License Number NPF-3
Licensee Event Report 2019-001

Enclosed is Licensee Event Report (LER) 2019-001, "Emergency Ventilation System Train Inoperable due to Non-specific Test Description of Damper Operation." This event is being reported pursuant to 10 CFR 50.73(a)(2)(i)(B).

There are no regulatory commitments contained in this letter or its enclosure. The actions described represent intended or planned actions and are described for information only. If there are any questions or if additional information is required, please contact Mr. James M. Vetter, Manager – Site Regulatory Compliance (Acting), at (419) 321-7393.

Sincerely,



Mark B. Bezilla

GMW

Enclosure: LER 2019-001

cc: NRC Region III Administrator
NRC Resident Inspector
NRR Project Manager
Utility Radiological Safety Board

IEZZ
NRR

**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/>)

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

Davis-Besse Nuclear Power Station, Unit 1

2. Docket Number

05000 346

3. Page

1 OF 4

4. Title:

Emergency Ventilation System Train Inoperable due to Non-specific Test Description of Damper Operation

5. Event Date

Month	Day	Year
06	21	2019

6. LER Number

Year	Sequential Number	Rev No.
2019	001	00

7. Report Date

Month	Day	Year
10	07	2019

8. Other Facilities Involved

Facility Name	Docket Number
	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

<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**

Gerald M. Wolf, Supervisor – Regulatory Compliance

Telephone Number (Include Area Code)

(419) 321-8001

13. Complete One Line for Each Component Failure Described in this Report

Cause	System	Component	Manufacturer	Reportable to ICES	Cause	System	Component	Manufacturer	Reportable to ICES
B	VC	PDC	NUS	Y					

14. Supplemental Report Expected**15. Expected Submission Date**☐ Yes (If yes, complete 15. Expected Submission Date) ☒ No

Month	Day	Year

Abstract (Limit to 1400 spaces, i.e., approximately 14 single-spaced typewritten lines)

On July 19, 2019, with the Davis-Besse Nuclear Power Station operating at approximately 100 percent power, during a scheduled monthly Surveillance Test it was identified Emergency Ventilation System (EVS) Fan 1 failed to produce the desired negative pressure within the Shield Building Negative Pressure area because the recirculation and exhaust dampers were not modulating as required. The degraded differential pressure controller, caused by a premature failure of the controller, was replaced to restore EVS Train 1 Operability. A review of the previous month's Surveillance Test performed on June 21, 2019, showed similar results were obtained, but it was not recognized at that time the dampers were not operating properly. It was determined that EVS Train 1 was inoperable for a 30-day period, which resulted in the plant operating in a condition prohibited by the Technical Specifications. The cause of the degraded controller not being identified during the previous month's test was a lack of specific description of damper operation in the monthly Surveillance Test, and the tests for both EVS Trains have been revised to specify the expected/ required damper positions and to clarify the test acceptance criteria.

This issue is being reported in accordance with 10 CFR 50.73(a)(2)(i)(B).

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

(See NUREG-1022, R.3 for instruction and guidance for completing this form
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1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Davis-Besse Nuclear Power Station Unit 1	05000 - 346	2019	- 001	- 00

NARRATIVE

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

DESCRIPTION OF OCCURRENCE:**System Description:**

The Station Emergency Ventilation System (EVS) [VC] at the Davis-Besse Nuclear Power Station (DBNPS) functions to collect and process potential leakage from the Containment vessel to minimize environmental activity levels resulting from all sources of Containment leakage following a loss of coolant accident (LOCA). The EVS is required to maintain a minimum negative pressure of one-quarter inch water gauge (-0.25 IWG) with respect to outside atmosphere within the annular space between the Shield Building and the Containment Vessel and in the penetration rooms following a LOCA. The EVS is also required to provide a filtered exhaust path from the Shield Building annulus and the penetration and pump rooms following a LOCA.

The EVS consists of two independent, redundant trains. Each train consists of a prefilter, a high efficiency particulate air (HEPA) filter, an activated charcoal adsorber section for removal of gaseous activity (principally iodines), and a fan. Normally, the EVS is idle during normal plant operations. Following a LOCA, the Safety Features Actuation System (SFAS) [JE] will start both fans, which will open the EVS suction dampers. With the EVS fans running, a differential pressure controller will open the EVS discharge dampers to the station vent stack and keep the recirculating dampers closed until the annulus differential pressure reaches the controller setpoint of negative three-quarters of an inch water gauge (-0.75 IWG) in the annulus. The SFAS signal will also close the Containment Purge and Exhaust System valves and the Emergency Core Cooling System (ECCS) pump room isolation valves to ensure that the Station EVS can draw down the Shield Building area to the required negative pressure.

Technical Specification(s):

Technical Specification (TS) Limiting Condition for Operation (LCO) 3.7.12 requires two Station EVS trains to be operable while in Modes 1, 2, 3, or 4. With one Station EVS train inoperable, Condition A requires that train be restored to Operable status in 7 days. If the required action of Condition A and associated Completion is not met, Condition C requires the unit to be in Mode 3 in 6 hours and Mode 5 within 36 hours. TS Surveillance Requirement 3.7.12.1 requires each Station EVS train operate for greater than or equal to 15 minutes every 31 days to ensure the standby systems function properly.

DESCRIPTION OF EVENT:

On July 19, 2019, at approximately 0820 hours with the DBNPS operating in Mode 1 at approximately 100 percent power, EVS Train 1 was declared inoperable to perform a scheduled calibration of Containment Annulus Pressure Differential Transmitter PDT5000 [VC-PDT]. Following the calibration, EVS Fan 1 was started at approximately 1356 hours for post-maintenance testing and to perform scheduled monthly Surveillance Testing to meet TS Surveillance Requirement 3.7.12.1. During this testing, the operating crew noted that EVS Fan 1 [VC-FAN] failed to produce the desired negative pressure of 0.75 inches of water gauge within the Shield Building Negative Pressure area. Investigations determined there was no modulation between the recirculation and exhaust dampers [VC-DMP] with the Containment Annulus Pressure



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Davis-Besse Nuclear Power Station Unit 1	05000 - 346	YEAR 2019	SEQUENTIAL NUMBER - 001	REV NO. - 00

NARRATIVE

DESCRIPTION OF EVENT: (continued)

Differential Controller PDC5000 [VC-PDC] in automatic mode, resulting in the discharge damper not opening and the recirculation damper opening fully, resulting in no definitive change in pressure with EVS Fan 1 operating.

A review of test data was completed on August 6, 2019, for the previous Surveillance Test performed on June 21, 2019. This review determined the previous test showed similar results to the July 19, 2019 test, indicating the dampers were not positioning properly to draw down the annulus area between the Shield Building and the Containment Vessel. Due to the potential for radiation, the ventilation systems in the Auxiliary Building are designed to maintain a negative pressure. Therefore, negative pressure is expected and may exist regardless of whether the Emergency Ventilation System is in operation or not. However, due to the large exhaust airflow rate of approximately 8000 cubic feet per minute (cfm), the EVS is expected to cause a noticeable decrease in pressure when aligned to exhaust to the station vent stack.

CAUSE OF EVENT:

The cause of the EVS recirculation and exhaust dampers not aligning properly to draw down the annulus area was due to a degraded differential pressure controller. The controller experienced a premature failure, having been in operation for only 609 days after the same model controller failed in 2017.

The cause for not identifying the controller failure during the June 21, 2019 monthly Surveillance Test was due to the lack of specific controller and damper response not being described in the Surveillance Test, and the Test acceptance criteria not explicitly describing what "operated properly" meant.

A contributing cause for not meeting the June 21, 2019 monthly Surveillance Test acceptance criteria was due to a knowledge gap within the operations crew. The crew did not recognize that with a sustained draw down pressure of approximately -0.45 inches water gauge differential pressure, the EVS exhaust damper should be full open attempting to further draw down to the desired value. Information contained in the monthly Surveillance Test procedure about wind affecting indications and door usage was used by the operating crew to determine indications were as expected, when in fact they were not.

ANALYSIS OF EVENT

The DBNPS EVS does not serve any function in preventing core damage. The negative pressure areas created by EVS serve to mitigate releases once core damage has occurred. Thus, there is no increase to Core Damage Frequency (CDF) related to this condition. Also, the DBNPS Probabilistic Risk Analysis (PRA) does not credit EVS to mitigate releases during an accident. Any releases from Containment are considered to be released directly to the environment. Therefore, there is no increase in the calculated Large Early Release Frequency (LERF) due to the unavailability of one train of EVS. Since there is no increase in CDF or LERF, the risk associated with the inoperable EVS train is considered to be very low safety significance.

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Davis-Besse Nuclear Power Station Unit 1	05000 - 346	2019	- 001	- 00

NARRATIVE**Reportability Discussion:**

In accordance with the guidance in NUREG-1022, there is no firm evidence the degraded differential pressure controller existed prior to discovery during the monthly Surveillance Test on June 21, 2019. Based upon the review of the previous surveillance test information on August 6, 2019, EVS Train 1 was considered not capable of performing its required TS function from the performance of the monthly Surveillance Test on June 21, 2019, until the pressure controller was replaced on July 21, 2019. This 30-day period is in excess of the 7-day plus 36-hour shutdown time described in TS LCO 3.7.12. Therefore, this issue represents operation or condition which was prohibited by the plant's Technical Specification, which is reportable as a Licensee Event Report per 10 CFR 50.73(a)(2)(i)(B). This report is being submitted within 60 days of the discovery of the reportable condition on August 6, 2019. Because EVS Train 2 remained operable per LCO 3.7.12 during the time period in question and only EVS Train 1 was affected by this issue, no loss of safety function occurred.

CORRECTIVE ACTIONS:**Completed Actions:**

On July 21, 2019, after replacement of Containment Annulus Pressure Differential Controller PDC5000 and successful Surveillance Testing, EVS Train 1 was declared Operable at 0135 hours.

The EVS monthly Surveillance Tests have been revised to clarify the intent of the Notes specific to expected/required damper positions and for clarification of the test acceptance criteria requirements.

Scheduled Actions:

The 2017 and 2019 failed differential pressure controllers will be shipped to the Original Equipment Manufacturer (OEM) for failure analysis.

PREVIOUS SIMILAR EVENTS:

There have been no Licensee Event Report (LERs) in the past 3 years at the DBNPS involving the EVS.