



FirstEnergy Nuclear Operating Company

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Mark B. Bezilla
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October 18, 2019

L-19-208

10 CFR 50.73

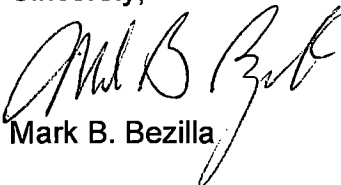
ATTN: Document Control Desk
United States Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Subject:
Davis-Besse Nuclear Power Station, Unit 1
Docket Number 50-346, License Number NPF-3
Licensee Event Report 2019-002

Enclosed is Licensee Event Report (LER) 2019-002, "Auxiliary Feedwater Trains Inoperable due to Loss of Train Separation from Door Being Left Open." This event is being reported pursuant to 10 CFR 50.73(a)(2)(v)(B) and 10 CFR 50.73(a)(2)(vii)(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

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Enclosure: LER 2019-002

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

IE22
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 Infocollect.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 5

4. Title:

Auxiliary Feedwater Trains Inoperable due to Loss of Train Separation from Door Being Left Open

5. Event Date

Month	Day	Year
08	19	2019

6. LER Number

Year	Sequential Number	Rev No.
2019	002	00

7. Report Date

Month	Day	Year
10	18	2019

8. Other Facilities Involved

Facility Name	Docket Number
	05000

9. Operating Mode

1

11. This Report is Submitted Pursuant to the Requirements of 10 CFR §: (Check all that apply)

- | | | | |
|---|---|---|--|
| <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) |
| 100 | <input type="checkbox"/> 20.2203(a)(2)(iii) | <input type="checkbox"/> 50.36(c)(2) | <input checked="" type="checkbox"/> 50.73(a)(2)(v)(B) |
| | <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"/> 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"/> 20.2203(a)(2)(vi) | <input type="checkbox"/> 50.73(a)(2)(i)(B) | <input checked="" type="checkbox"/> 50.73(a)(2)(vii) |
| | | <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**

Gwen A. Ellithorpe, Staff Nuclear Specialist – Regulatory Compliance

Telephone Number (Include Area Code)

(419) 321-7757

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
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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 August 19, 2019, with the Davis-Besse Nuclear Power Station operating in Mode 1 at approximately 100 percent power, the door separating the two Auxiliary Feedwater (AFW) Pump Rooms was left open for approximately 75 minutes during scheduled work on AFW Train 1 piping. The watertight door, which serves as a Fire, Flood, Tornado, Security, and High Energy Line Break barrier, was closed upon discovery by a plant operator performing rounds. With the door open and unattended, both AFW trains were inoperable due to the loss of train separation.

The cause of the door being left open and unattended was worker inattention to door signage, resulting in non-adherence to door usage requirements. Contributing to the event was less than adequate monitoring of the door by Site Protection in accordance with procedures. Corrective actions included coaching of the workers on the importance of maintaining vital area doors, communication on door design, functions and usage with site employees, discussion on lessons learned from the event, and incorporation of additional guidance in Site Protection procedures.

This event is being reported pursuant with 10 CFR 50.73(a)(2)(v)(B) and 10 CFR 50.73(a)(2)(vii)(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	- 002	- 00

NARRATIVE

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

DESCRIPTION OF OCCURRENCE:**System Description:**

The Davis-Besse Nuclear Power Station (DBNPS) Emergency Feedwater (EFW) System [BA] consists of two Auxiliary Feedwater (AFW) trains and the Motor Driven Feedwater Pump (MDFP) [BA-P]. The AFW System provides a safety-related source of feedwater to the secondary side of the Steam Generators [AB-SG] in the event of a loss of normal feedwater flow to remove reactor decay heat. The AFW pumps [BA-P] take suction from the Condensate Storage Tanks (CST) [KA-T] and pump to the Steam Generator secondary side through the AFW nozzles. The Steam Generators function as a heat sink for core decay heat. The heat load is dissipated by releasing steam to the atmosphere from the Steam Generators via the Main Steam Safety Valves (MSSVs) [SB-RV] or Atmospheric Vent Valves [SB-VTV].

The AFW System consists of two steam turbine driven AFW pumps, each of which provides a nominal 100% capacity. The steam turbine driven AFW pumps receive steam from either of the two main steam headers, upstream of the Main Steam Isolation Valves (MSIVs). The AFW System supplies water via two headers, each capable of feeding either steam generator. The 100 percent capacity is sufficient to remove decay heat and cool the unit to Decay Heat Removal (DHR) System [BP] entry conditions. The AFW System normally receives a supply of water from the CSTs. A safety grade source of water is also supplied by the Service Water System (SWS) [BI].

The MDFP train provides feedwater to the steam generators during normal plant startup and shutdown. The non-safety related MDFP train is also designed to provide a backup supply of feedwater to the steam generators in the event of a total loss of both AFW and main feedwater (MFW).

Technical Specification(s):

Technical Specification (TS) Limiting Condition for Operation (LCO) 3.7.5 requires three EFW trains, consisting of two AFW trains and the Motor Driven Feedwater Pump (MDFP) train, be Operable while in Modes 1, 2, or 3, and in Mode 4 when a Steam Generator is relied upon for heat removal. In Mode 1 with one EFW train inoperable, Condition B requires the inoperable EFW train be restored to Operable status within 72 hours. If these actions and associated completion times cannot be met, or if two EFW trains are inoperable, LCO 3.7.5 Condition D requires the plant be placed in Mode 3 in 6 hours and Mode 4 within 12 hours.

DESCRIPTION OF EVENT:

On August 19, 2019, with the DBNPS operating in Mode 1 at approximately 100 percent power, preventive maintenance activities were scheduled to remove piping insulation and perform Ultrasonic Testing (UT) inspection of Service Water piping to AFW Train 1 piping. Approval from the Operations Shift Engineer/Shift Manager to perform the work and a request to have Security open the hatch, Door 363, to the AFW Pump Rooms was obtained prior to the start of work.

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CONTINUATION SHEET**

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NARRATIVE**DESCRIPTION OF EVENT: (continued)**

Following a task preview in the Maintenance Services Shop, two (2) Maintenance Services and two (2) Quality Control (QC) personnel convened at the hatch, Door 363, that allows access to AFW Pump 2 Room. The hatch was opened by the dispatched Security Officer and latched open. The four (4) workers swiped their badges and entered through Door 363 and went down the stairs, traversing through AFW Pump 2 Room to Door 215. Door 215 is a watertight door that provides normal access to AFW Pump 1 Room. Door 215 was then opened and the workers proceeded through, leaving the door open. The Central Alarm Station (CAS) received the appropriate alarm upon the door being opened at 0811. A card reader does not control access into/out of Door 215; the door is monitored by CAS which receives an alarm upon the door being opened and a reset when closed.

Following piping insulation removal, the Maintenance Services workers returned to their shop to wait for the QC workers to complete their inspections before reinstalling the insulation. After the Maintenance Services workers left the area, a Security Officer on patrol entered Door 363 at 0858 and descended the stairs, observing one of the QC workers going between the two rooms, with Door 215 open. The Security Officer called the CAS Officer and reported the door check was complete and left the area at 0900. Approximately twenty-two (22) minutes later, 0922, one additional QC worker also left the area with the Door 215 remaining open. At 0924 hours, a Plant Operator performing a zone tour swiped their badge at Door 363 and when arriving at Door 215, noted it was open and unattended. The Operator contacted Shift Management, who directed the Operator to close Door 215. Door 215 was subsequently closed, and a reset alarm was received at CAS at 0926.

CAUSE OF EVENT:

The cause of Door 215 being left open for approximately 75 minutes without permission from Operations was worker inattention to door signage, resulting in non-adherence to door usage requirements. Workers did not read and/or adhere to door signage in accordance with Site/Management expectations or procedural guidance.

A contributing cause for this event was that Door 215 monitoring by Security was not completed in accordance with procedure, contributing to the door remaining open for longer than allowed for ingress or egress.

ANALYSIS OF EVENT:

The two Auxiliary Feedwater Trains are separated by Door 215, which serves as a Fire, Flood, Tornado, Security, and High Energy Line Break (HELB) barrier. The door allows transit between the two vital area rooms. With Door 215 open, the design/licensing basis regarding breaks of a Main Steam Line or Feedwater line in the AFW Rooms was no longer met, as the wall and "pressure door" are credited for separating the two rooms to protect the adjacent AFW train. As a result, both AFW trains were declared inoperable due to the loss of train separation in accordance with LCO 3.7.5.

Operability of the AFW System was restored when the door was closed at 0926.

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CONTINUATION SHEET**

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NARRATIVE**ANALYSIS OF EVENT: (continued)**

The non-safety grade Motor-Driven Feedwater Pump remained Operable during this time; additionally, the beyond-design basis diesel-driven Emergency Feedwater Pump also remained available.

Both AFW trains were functional during the inoperable window but were vulnerable to a common cause failure from various environmental causes. Of concern is a High Energy Line Break (HELB) which Door 215 functions to protect against. The Probabilistic Risk Assessment (PRA) does not account for specific HELB breaks, and thus a bounding assessment of risk was performed.

Additional hazards, including flooding and internal fires, have the capability to impact both AFW trains while the door was open. Only scenarios where an internal fire or flood that affected one of the two compartments are considered to have been impacted by the deficient condition.

The plant risk associated with the inoperable AFW trains is considered of very low safety significance. This is based on the change in core damage frequency for the event during total 75 minutes that the degraded condition existed. A sensitivity with the draft NFPA 805 model evaluated for Internal Fires indicated this event is overall considered of very low safety significance as well.

Reportability Discussion:

With Door 215 open, both trains of AFW were rendered inoperable per TS LCO 3.7.5. This resulted in a loss of Safety Function for the AFW System, which was reported per 10 CFR 50.72(b)(3)(v)(B) at 1446 hours on August 19, 2019; refer to Event Notification Number 54229. This issue is being reported as an event or condition that could have prevented fulfillment of a safety function of system needed to remove residual heat per 10 CFR 50.73(a)(2)(v)(B) and as a common cause inoperability of independent trains per 10 CFR 50.73(a)(2)(vii)(B).

CORRECTIVE ACTIONS:**Completed Actions:**

The workers involved were removed from the field and coached on the importance/requirements of vital area doors. The lessons learned by the involved department personnel were documented and presented to management and a stand down communication on the door design, functions and usage was shared with site employees. 2019 Cycle 2 Supervisor Continuing Training (G-SSC-201902_DB) includes discussions of the lessons learned from this event regarding Door 215.

Scheduled Actions:

Site Protection will incorporate additional procedural guidance on the monitoring of Door 215.

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NARRATIVE**PREVIOUS SIMILAR EVENTS:**

DBNPS Licensee Event Report (LER) 2017-002 reported the inoperability of AFW Train 1 for approximately 87 days with the plant operating in Mode 1. In addition, during the time AFW Train 1 was Inoperable, AFW 2 was Inoperable for maintenance and testing on multiple occasions. The corrective actions taken in response to the 2017 event included ensuring proper oil sight glass markings were made on both AFW Pump Turbine inboard bearings and direct observation of correct sight glass level markings on outboard bearings during the next refueling outage in March 2018. Lubrication Manual Data Sheets were also revised to include bearing oil sight glass minimum and maximum level dimensions as well as adding a reference to the Lubrication Manual in Preventive Maintenance Activities. The actions in response to the 2017 event are unrelated to the cause of the event being reported in this LER and there have been no LERs at DBNPS involving a loss of a Safety Function related to door control in the past three years.