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October 17, 2014

L-14-302

10 CFR 50.73

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

SUBJECT:  
Davis-Besse Nuclear Power Station  
Docket Number 50-346, License Number NPF-3  
Licensee Event Report 2014-003

Enclosed is Licensee Event Report (LER) 2014-003, "Door Latch Failure Results in Loss of Emergency Ventilation System Function." This LER is being reported in accordance with 10 CFR 50.73(a)(2)(v)(C) and (D).

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. Patrick J. McCloskey, Manager, Site Regulatory Compliance, at (419) 321-7274.

Sincerely,

Raymond A. Lieb

GMW

Enclosure: LER 2014-003

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

IE22  
NRR



Estimated burden per response to comply with this mandatory collection request: 80 hrs. 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 internet e-mail to [Infocollections.Resource@nrc.gov](mailto: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 Davis-Besse Nuclear Power Station	2. DOCKET NUMBER 05000 346	3. PAGE 1 OF 4
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#### 4. TITLE

Door Latch Failure Results in Loss of Emergency Ventilation System Function

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 05000
08	18	2014	2014 - 003 - 00			10	17	2014	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)(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)	
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)(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 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 checked="" 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 Gerald M. Wolf, Supervisor, Nuclear Compliance	TELEPHONE NUMBER (Include Area Code) (419) 321-8001

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
B	VC	DR	X999	Y						

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

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

On August 18, 2014, with the Davis-Besse Nuclear Power Station operating in Mode 1 approximately 100 percent full power, a door to a mechanical penetration room could not be secured following normal usage. This door is required to be latched closed to maintain the shield building negative pressure boundary except when open under administrative control. With the door unable to be latched closed, the Station Emergency Ventilation System could not perform its required safety function of maintaining a negative pressure in the affected area. The door was restored to the latched status in ten minutes. A similar failure to latch on August 20, 2014, was also experienced, and the door was re-latched in four minutes.

The cause of this event was a design flaw that could cause the latch fingers to stick, preventing the door from latching; and an infantile failure of the door closer. A vendor modified version of the latch was installed along with a new door closer to correct the problem.

This event is being reported pursuant to 10 CFR 50.73(a)(2)(v)(C) and (D) as an event that could have prevented fulfillment of the safety function of the Station Emergency Ventilation System.

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

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**NARRATIVE**

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

**System Description:**

The Davis-Besse Nuclear Power Station (DBNPS) Emergency Ventilation System (EVS) [VC] functions to collect and process potential leakage from the containment vessel [NH] to minimize environmental activity levels resulting from all sources of containment leakage following a loss of coolant accident (LOCA). The Station EVS is required to:

1. Maintain a negative pressure 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; and
2. Provide a filtered exhaust path from the shield building annulus and the penetration and pump rooms following a LOCA.

**Technical Specifications:**

Technical Specification (TS) Limiting Condition for Operation (LCO) 3.7.12 requires the two Station EVS trains to be Operable in Modes 1 through 4. This LCO is modified by a note stating that the shield building negative pressure boundary may be opened intermittently under administrative control. With two Station EVS trains inoperable due to an inoperable shield building negative pressure boundary, TS 3.7.12 Action B.1 requires the negative pressure boundary be restored to Operable status in 24 hours.

**DESCRIPTION OF EVENT:**

On August 18, 2014, the DBNPS was operating in Mode 1 at approximately 100 percent full power. As part of a routine fire watch patrol, a Site Protection Officer entered Mechanical Penetration Room 4 through Door 308 [VC-DR] and secured the door behind them. Door 308 is required to maintain the shield building negative pressure boundary. This door also serves as a fire door required by 10 CFR 50, Appendix R, and as a High Energy Line Break (HELB) barrier. The door is a hollow metal door which has a mortise lock (latch), electric strike, strike plate, trim, key cylinder, door knobs, and door closer (closure). The door and door hardware are standard commercial equipment (not safety-related equipment), and are not unique to the nuclear industry. The mortise lock, installed in a cut out/pocket in the door, is a commercial item designed for high use applications and is used in many industries. The door strike is located in the door frame, and the strike opens after a signal is received from the card reader to allow access to the room. The card reader or strike do not cause the mortise/latch fingers to retract. The mortise must be aligned with the electric strike in order to function correctly.

Upon completion of the fire watch check in the room, the Officer attempted to exit the room; however, they discovered the door would not open. After notifying supervision of the issue, the Officer tried the door again and was able to open the door, but then was not able to secure the door. Since Door 308 opens into Mechanical Penetration Room 4, with the door unable to be latched closed, the shield building negative pressure boundary was degraded. As a result, the Station EVS was declared inoperable at 1925 hours on August 18, 2014, and TS LCO 3.7.12 Action B.1 entered. Approximately ten (10) minutes later, continuous service maintenance personnel were able to restore the door latch function, and TS LCO 3.7.12 was exited.

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

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**NARRATIVE**

**DESCRIPTION OF EVENT: (continued)**

On August 20, 2014, Door 308 again failed to latch closed prior to the final repairs being made, resulting in the Station EVS being declared inoperable and TS LCO 3.7.12 Action B.1 was entered. The door was able to be re-latched in approximately four (4) minutes, and TS LCO 3.7.12 Action B.1 was exited.

**CAUSE OF EVENT:**

A direct cause of Mechanical Penetration Room 4 Door 308 failure to latch was a design flaw that could cause the mortise/latch fingers to stick, preventing the door from opening and closing as required. This design flaw was not identified during the original testing of the commercial mortise/latch due to inadequate testing by the vendor of the original style mortise/latch. The vendor had a modified version of the mortise/latch body to correct the problem available, but not yet in full production.

A second direct cause of Door 308 failure to properly open and close is that the door closer stuck in the partially open position. The door closer for Door 308 was an adjustable, one size fits all, door closer that was not properly sized for the application. While the closer may have been the strongest available from the vendor and the best available model at the time of selection, it did not have sufficient strength to close the door against the normal forces placed on the door by ventilation or to prevent the door from slamming closed during off normal ventilation conditions. The selection of the door closer is a latent design issue potentially going back to original plant design.

The root cause of Door 308 failing to close was that effective corrective actions were not taken to correct door failures. The door closer had been replaced numerous times with like for like components, and issues with the door not closing properly had been experienced for more than 10 years and possibly since original installation without taking adequate corrective actions.

**ANALYSIS OF EVENT:**

Upon identification that Door 308 was not closing/latching properly to perform its required function of maintaining the shield building negative pressure boundary, steps were immediately taken to return the door to the fully closed and latched position. Both events resulted in the door being open for only a few minutes. Because the door was open only a small fraction of the TS Action Completion Time of 24 hours, these events were of very low safety significance.

**Reportability Discussion:**

The initial evaluation of this issue by the on-shift licensed operators did not consider the event to be reportable because it was bounded by the TS Action Completion Time. The following morning (August 19, 2014) the reportability of this issue was challenged by FENOC fleet personnel, and the NRC was subsequently notified of this event per 10 CFR 50.72(b)(3)(v) at 1429 hours via Event Number 50381. The late notification per 10 CFR 50.72 has been entered into the DBNPS Corrective Action Program. Following the second door failure on August 20, 2014, at 0413 hours, the NRC was verbally notified of the event per 10 CFR 50.72(b)(3)(v) at 1027 hours via an update to Event Number 50381. This issue is being reported in accordance with 10 CFR 50.73(a)(2)(v)(C) and (D) as an event that could have prevented fulfillment of the safety function of the Station Emergency Ventilation System, which is needed to control the release of radioactive material and mitigate the consequences of an accident.

## LICENSEE EVENT REPORT (LER) CONTINUATION SHEET

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**NARRATIVE**

**CORRECTIVE ACTIONS:**

Following the failure of Door 308, restrictions were placed on the use of the door that significantly reduced its use until repairs could be made. The door mortise/latch was replaced with a modified mortise, and the door closer was replaced due to what appeared to be an infantile failure of the newly installed closer. Additionally, a temporary means of securing the door in the event the latch failed was implemented.

Other plant doors that are part of the shield building negative pressure boundary were inspected and found to be acceptable.

An action plan is being developed to evaluate priority doors that place the plant in a 24 hour or shorter TS LCO, or result in a loss of a safety function, which is reportable to the NRC per 10 CFR 50.72. This action plan includes evaluation of the door mortises and closers for the appropriate model and size, evaluation of an alternate means of closing should the existing door latch fail, and installation of the necessary hardware.

The old style mortises will be removed from warehouse stock and replaced with the vendor-modified mortise.

**PREVIOUS SIMILAR EVENTS:**

There have been no Licensee Event Reports submitted for the DBNPS in the past three years documenting failure of a door, or involving a loss of safety function of the Station Emergency Ventilation System.