



FirstEnergy Nuclear Operating Company

Beaver Valley Power Station  
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October 10, 2014  
L-14-331

10 CFR 50.73

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

SUBJECT:  
Beaver Valley Power Station, Unit Nos. 1 and 2  
BV-1 Docket No. 50-334, License No. DPR-66  
BV-2 Docket No. 50-412, License No. NPF-73  
LER 2014-005-00

Enclosed is Licensee Event Report (LER) 2014-005-00, "Containment Equipment Hatch Missile Shield Removal Inadvertently Results In Exceeding Technical Specification 3.6.1 Required Completion Times." This event is being reported in accordance with 10 CFR 50.73(a)(2)(i)(B), 10 CFR 50.73(a)(2)(v)(C), and 10 CFR 50.73(a)(2)(v)(D).

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

If there are any questions or if additional information is required, please contact Mr. William C. Cothen, Manager, Regulatory Compliance at 724-682-4284.

Sincerely,

Eric A. Larson

Enclosure – LER 2014-005-00

cc: Mr. D. C. Lew, NRC Acting Region I Administrator  
Mr. J. A. Krafty, NRC Senior Resident Inspector  
Mr. J. A. Whited, NRR Project Manager  
INPO Records Center (via INPO Consolidated Event System)  
Mr. L. E. Ryan (BRP/DEP)

TE22  
MRR

**LICENSEE EVENT REPORT (LER)**

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

Estimated burden per response to comply with this mandatory information 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 FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to [infocollects.Resource@nrc.gov](mailto: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.

<b>1. FACILITY NAME</b> Beaver Valley Power Station Unit Number 1	<b>2. DOCKET NUMBER</b> 05000334	<b>3. PAGE</b> 1 OF 3
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**4. TITLE**  
Containment Equipment Hatch Missile Shield Removal Inadvertently Results In Exceeding Technical Specification 3.6.1 Required Completion Times

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
08	13	2014	2014	005	00	10	10	2014	Beaver Valley Unit 2	05000412
									FACILITY NAME	DOCKET NUMBER

<b>9. OPERATING MODE</b>  Mode 1	<b>11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §:</b> (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)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)						
<b>10. POWER LEVEL</b>  100	<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)						
	<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	Specify in Abstract below or in NRC Form 366A						
<input type="checkbox"/> 20.2203(a)(2)(vi)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)	<input checked="" type="checkbox"/> 50.73(a)(2)(v)(D)								

**12. LICENSEE CONTACT FOR THIS LER**

LICENSEE CONTACT William C. Cothen, Manager, Regulatory Compliance	TELEPHONE NUMBER (Include Area Code) 724-682-4284
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**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

<b>14. SUPPLEMENTAL REPORT EXPECTED</b> <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	<b>15. EXPECTED SUBMISSION DATE</b>	MONTH	DAY	YEAR
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**ABSTRACT** (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

NRC Inspection Report Nos. 05000334/2014003 and 05000412/2014003 dated August 13, 2014, documented a Green non-cited violation of Technical Specification (TS) LCO 3.6.1, "Containment," since the Containment equipment hatch missile shields were removed while in a Mode in which Containment was required to be operable and the actions directed by the required action statement were not taken. An assessment performed in 2002 to permit Containment equipment hatch missile shields to be removed during Modes 1 through 4 was based on a too narrowly focused review that incorrectly determined that the removal of the missile shield did not affect Containment operability. Containment operability with the equipment hatch missile shield removed was not adequately assessed, nor were equivalent compensatory measures implemented. Therefore, the required actions of TS LCO 3.6.1, "Containment," were not entered nor met. In the past three years, the Containment equipment hatch missile shields were removed prior to four planned refueling outages, two at each Unit.

This event is reportable under 10 CFR 50.73(a)(2)(i)(B) as an operation or condition prohibited by technical specifications, and reportable under 10 CFR 50.73(a)(2)(v) as an event or condition that could have prevented fulfillment of the safety function of structures or systems that are needed to: (C) Control the release of radioactive material; and (D) Mitigate the consequences of an accident.

The apparent cause was determined to be that the relationship of TS operability and compliance with the design basis requirements was not fully understood. Too narrow a focus on TS and the TS bases for determining impact on operability was applied. This resulted in the inoperability of Containment not being recognized when the equipment hatch missile shields were removed. Corrective actions include training for engineering and operations personnel, and enhancing the work management process to ensure engineering evaluations are complete prior to removal of missile barriers.

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

Estimated burden per response to comply with this mandatory information 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 FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to [infocollects.Resource@nrc.gov](mailto: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	6. LER NUMBER			3. PAGE
Beaver Valley Power Station Unit Number 1	05000334	YEAR	SEQUENTIAL NUMBER	REV NO.	2 OF 3
		2014	- 005	- 00	

**NARRATIVE**

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

**CONDITIONS PRIOR TO OCCURRENCE**

The events described in this LER are the result of a legacy issue documented in an NRC Inspection Report dated August 13, 2014. On August 13, 2014, Beaver Valley Power Station (BVPS) Unit 1 and Unit 2 were both operating in Mode 1 at 100 percent power and the Containment equipment hatch missile shields were installed.

There were no systems, structures, or components that were inoperable at the start of the events that contributed to the events.

**DESCRIPTION OF EVENT**

NRC Inspection Report Nos. 05000334/2014003 and 05000412/2014003 dated August 13, 2014, documented a Green non-cited violation of Technical Specifications (TS) LCO 3.6.1, "Containment," since the Containment [NH] equipment hatch missile shields were removed while in a Mode in which Containment was required to be operable and the actions directed by the required action statement were not taken. TS LCO 3.6.1 is applicable in Modes 1 through 4. FirstEnergy Nuclear Operating Company (FENOC) documented the issue in the corrective action program and placed the applicable procedures for removal of the equipment hatch missile shields on administrative hold.

The investigation determined that an assessment performed in 2002 to permit Containment equipment hatch missile shields to be removed during Modes 1 through 4 for up to 72 hours prior to the beginning of a refueling outage was based on an incorrect determination that removal of the equipment hatch missile shield did not affect Containment operability. This conclusion was based on a review of the TS and associated bases. The TS and associated bases do not explicitly describe missile shields nor do they contain surveillance requirements to ensure that missile shields are intact. Containment missile protection is a required design feature per 10 CFR 50 Appendix A GDC 2 and the BVPS Unit 1 and Unit 2 Updated Final Safety Analysis Reports (UFSAR). Thus, when the missile shields were removed, the effect on Containment operability needed to be assessed. However, an engineering evaluation was not completed and equivalent compensatory measures were not implemented prior to removal of the missile shields. The resultant Containment inoperability with the missile shields removed was not recognized. Therefore, the required actions of TS LCO 3.6.1, "Containment," were not entered nor met.

In the past three years, the Containment equipment hatch missile shield was removed prior to each of four planned refueling outages. For the BVPS Unit 1 1R21 refueling outage, the missile shield was removed on April 6, 2012, and Mode 5 was entered at 0534 hours on April 9, 2012. For the BVPS Unit 1 1R22 refueling outage, the missile shield was removed on September 27, 2013, and Mode 5 was entered at 0554 hours on September 30, 2013. For the BVPS Unit 2 2R16 refueling outage, the missile shield was removed on September 21, 2012, and Mode 5 was entered at 0536 hours on September 24, 2012. For the BVPS Unit 2 2R17 refueling outage, the missile shield was removed on April 18, 2014, and Mode 5 was entered at 0551 hours on April 19, 2014.

**CAUSE OF EVENT**

The relationship of TS operability and compliance with the design basis requirements was not fully understood. Too narrow a focus on TS and the TS bases for determining impact on operability was applied. This resulted in the inoperability of Containment not being recognized when the equipment hatch missile shields were removed.

The contributing cause for this event was determined to be a review process weakness for removing or altering missile barriers.

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

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**NARRATIVE**

**ANALYSIS OF EVENT**

Based on the physical location of the BVPS Unit 1 and BVPS Unit 2 Containment equipment hatch openings relative to other plant equipment, the postulated source of missiles affecting the Containment equipment hatch opening is limited to tornados and does not include other potential missile generation sources such as those missiles generated from high energy line breaks. A review of National Oceanic and Atmospheric Administration (NOAA) National Weather Service Storm Prediction Center data for the continental United States revealed that no Severe Thunderstorm Watches, Tornado Watches, nor Tornado Warnings were in effect for the greater area surrounding the BVPS site during the timeframes when the missile shields were removed in Modes 1, 2, 3, or 4 in the past 3 years. Based on the information from NOAA National Weather Service Storm Prediction Center, postulated tornado generated missiles at BVPS were not credible when the missile shields were removed. The weather data supports that tornado spawning weather was not present within 500 miles of the site during these timeframes.

The plant risk associated with the removal of the Containment equipment hatch missile shields prior to Mode 5 at BVPS Units 1 and 2 identified on August 13, 2014, is considered to be very low. This is based on the delta core damage frequency and delta large early release frequency from postulated tornado generated missiles during the periods that the missile shields were removed.

Since BVPS Unit 1 and Unit 2 Containments were determined to be inoperable and inadvertently exceeded the required completion times in TS LCO 3.6.1, "Containment," this resulted in an operation or condition prohibited by TS reportable under 10 CFR 50.73(a)(2)(i)(B).

The Containment is intended to mitigate the consequences of an accident as discussed in the relevant chapters in the UFSAR. Per the discussion in NUREG-1022, Revision 3, this event is reportable under 10 CFR 50.73(a)(2)(v) as a condition that could have prevented fulfillment of a safety function of structures or systems that are needed to: (C) Control the release of radioactive material; and (D) Mitigate the consequences of an accident.

**CORRECTIVE ACTIONS**

1. Train applicable engineering and operations personnel on relationship between the missile protection support function and its potential impact on TS operability.
2. Revise applicable plant drawing notes to indicate that engineering evaluations are required prior to missile barrier removal. Based on this additional guidance, the work management process will then ensure restraints to complete required engineering evaluations are added to the associated work orders.

Completion of the above and other corrective actions are being tracked through the BVPS Corrective Action Program.

**PREVIOUS SIMILAR EVENTS**

A review of BVPS LERs in the past three years for issues related to Containment identified the following:

BVPS Unit 1 LER 2013-002-01, "Containment Liner Through Wall Defect Discovered During Planned Visual Inspection."