



Dresden Nuclear Power Station  
6500 North Dresden Road  
Morris, IL 60450

SVPLTR # 18-0004

10 CFR 50.73

February 15, 2018

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

Dresden Nuclear Power Station, Unit 2  
Renewed Facility Operating License Nos. DPR-19  
NRC Docket No. 50-237

Subject: Licensee Event Report 237/2017-002-01, Unit 2 Primary Containment Inboard and Outboard Feedwater Isolation Valves Exceed Leakage

Enclosed is Licensee Event Report 237/2017-002-01, "Primary Containment Inboard and Outboard Feedwater Isolation Valves Exceed Leakage." This report describes events which are being reported in accordance with 10 CFR 50.73(a)(2)(i)(B), "Any operation or condition which was prohibited by the plant's Technical Specifications," in accordance with 10 CFR 50.73(a)(2)(ii)(A), "Any event or condition that resulted in the condition of the nuclear power plant, including its principal safety barriers, being seriously degraded," and in accordance with 10 CFR 50.73(a)(2)(v)(C), "Any event or condition that could have prevented the fulfillment of the safety function of ... systems that are needed to control the release of radioactive material." This is a supplement to Revision 0 of LER 237/2017-002.

There are no regulatory commitments contained in this submittal.

Should you have any questions concerning this letter, please contact Mr. Bruce Franzen at (815) 416-2800.

Respectfully,

A handwritten signature in black ink, appearing to read "Peter J. Karaba".

Peter J Karaba  
Site Vice President  
Dresden Nuclear Power Station

Enclosure Licensee Event Report 237/2017-002-01

cc: Regional Administrator – NRC Region III  
NRC Senior Resident Inspector – Dresden Nuclear Power Station

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**

Dresden Nuclear Power Station, Unit 2

**2. DOCKET NUMBER**

05000237

**3. PAGE**

1 OF 3

**4. TITLE**

Primary Containment Inboard and Outboard Feedwater Isolation Valves Exceed Leakage Limits

**5. EVENT DATE**

MONTH	DAY	YEAR
11	01	2017

**6. LER NUMBER**

YEAR	SEQUENTIAL NUMBER	REV NO.
2017	002	01

**7. REPORT DATE**

MONTH	DAY	YEAR
02	15	2018

**8. OTHER FACILITIES INVOLVED**

FACILITY NAME	DOCKET NUMBER
N/A	N/A

**9. OPERATING MODE****11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)**

5

<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input checked="" 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**

0

<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 checked="" 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**

Bruce Franzen, Regulatory Assurance Manager

**TELEPHONE NUMBER (Include Area Code)**

815-416-2800

**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
X	SJ	ISV	Crane Co	Y					

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

MONTH	DAY	YEAR

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

On November 1, 2017 at 1225 CDT, with Unit 2 shutdown for refueling outage D2R25, both the 2-220-58A Feedwater (FW) Inboard Check Valve and the 2-220-62A FW Outboard Check Valve failed Local Leak Rate Testing (LLRT) acceptance criteria. Technical Specification (TS) 5.5.12, 'Primary Containment Leakage Rate Testing Program,' establishes limits for Primary Containment leakage. Based upon the results of the LLRT, Dresden Unit 2 may not have met the limits for primary containment leakage during the last operating cycle as specified in TS 5.5.12.C. The cause of the failure was the inability to fully seat the valve disc in the seat assembly for testing. Corrective actions included replacing valve assemblies using the latest maintenance practices and installing larger test taps for improved testing. This event is reportable under 10 CFR 50.73(a)(2)(i)(B) as a condition prohibited by TS, under 10 CFR 50.73(a)(2)(ii)(A) as an event that resulted in the condition of the plant including its principal safety being seriously degraded, and under 10 CFR 50.73(a)(2)(v)(C) as an event or condition that could have prevented the fulfillment of a safety function of a system that is needed to control the release of radioactive material.

**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.
Dresden Nuclear Power Station, Unit 2	05000237	2017	- 002	- 01

**NARRATIVE**

Dresden Nuclear Power Station (DNPS), Unit 2, is a General Electric Company Boiling Water Reactor with a licensed maximum power level of 2957 megawatts thermal. The Energy Industry Identification System codes used in the text are identified as [XX].

**A. Plant Conditions Prior to Event:**

Unit: 02                      Event Date: 11/01/2017  
Reactor Mode: 5            Mode Name: Refueling

Event Time: 1225 CDT  
Power Level: 0 percent

**B. Description of Event:**

On November 1, 2017, during a Unit 2 refueling outage, Local Leak Rate Testing (LLRT) results identified both the 2-220-58A Feedwater (FW) [SJ] Inboard Check Valve [ISV] and the 2-220-62A FW Outboard Check Valve failed the LLRT acceptance criteria. The "as-found" leak rate for both valves was above the administrative acceptance criteria of 45.0 standard cubic feet per hour (scfh), and based upon the leakage rate observed, leakage was also determined to exceed the limits for Primary Containment [NH] leakage as specified in Technical Specification (TS) 5.5.12.c.

During testing, the in-series FW "A" loop Containment isolation valve volumes could not be pressurized with full flow service air through the test tap configuration. The injected air immediately passed through the check valve and out the test vent tap, indicating that the valve disc was not fully seated. Therefore, the check valve leakage rates could not be quantified, and based upon the diameter of the valves, it was determined that primary containment leakage rate limits would be exceeded through these valves. Repair and testing of the valves was successfully completed using improved maintenance practices. Additionally, larger size test taps were installed for improved testing.

These valves are considered primary containment isolation valves that are required to close to ensure that an adequate primary containment boundary is maintained. This event is being reported in accordance with 10 CFR 50.73(a)(2)(i)(B), "any operation or condition which was prohibited by the plant's Technical Specifications," in accordance with 10 CFR 50.73(a)(2)(ii)(A), "any event or condition that resulted in the condition of the nuclear power plant, including its principal safety barriers, being seriously degraded," and in accordance with 10 CFR 50.73(a)(2)(v)(C) "any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to control the release of radioactive material."

**C. Cause of Event:**

The cause of the failure to meet LLRT limits was the inability to fully seat the valve disc in the seat assembly for testing due to the improved maintenance and testing practices not being implemented yet. Inspections of the valve internals showed similar results as evaluated in previous occurrences in 2011 and 2014. The failure of the check valve was a result of inadequate seating due to testing configurations.

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Dresden Nuclear Power Station, Unit 2	05000237	2017	- 002	- 01

**NARRATIVE****D. Safety Analysis:**

The FW Primary Containment Isolation Valves (PCIV) provide containment isolation to control fission product release and provide reactor coolant pressure boundary isolation in the event of a FW line break.

It was conservatively determined that the unit was susceptible to a FW line breach outside of Primary Containment with the FW PCIVs failed. Dresden's Updated Final Safety Analysis Report (UFSAR) describes any FW breach in the Reactor Building as being bounded by the effects of a main steam line breach. The low probability of pipe rupture and location of the potential FW line breach inside the Reactor Building minimize the risk significance of the two PCIVs failures. The impact to the Core Damage Frequency and Large Early Release Frequency has been determined to be non-risk significant.

**E. Corrective Actions:**

The immediate corrective actions included replacing valve internals and installed larger test taps for improved testing. Corrective actions from previous occurrences are being implemented for all susceptible valves to prevent recurrence of this type of event.

**F. Previous Occurrences:**

A search was performed to show previous occurrences for this event, with the following results:

LER 249/2000-004-01 dated 2/15/2001: Dresden Unit 3 - TS Non Compliance due to Primary Containment Inboard and Outboard FW Isolation Valves Exceeding LLRT Allowable Limits

LER 249/2000-005-01 dated 3/16/2001: Dresden Unit 3 - TS Non Compliance due to Primary Containment B Inboard and Outboard Main Steam Isolation Valves Exceeding LLRT Allowable Limits

Station Issue Report 1135779 dated 11/04/2010: Dresden Unit 3 - D3R21 LLRT failures of two FW check valves. An Equipment Apparent Cause Analysis was performed.

Station Issue Report 1288720 dated 11/10/2011: Dresden Unit 2 - D2R22 LLRT failures of all FW check valves. A Root Cause Analysis was performed.

LER 237/2013-005-00 dated 1/13/2014: Dresden Unit 2 - Primary Containment Inboard and Outboard Feed Water Isolation Valves Exceed Leakage Limits

**G. Component Failure Data:**

The check valves are tilting disc check valves, Crane model L973.