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10 CFR 50.73

SVPLTR # 11-0005

January 25, 2011

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

Dresden Nuclear Power Station, Unit 3
Renewed Facility Operating License No. DPR-25
NRC Docket No. 50-249

Subject: Licensee Event Report 249/2010-003-00, Steam Leak Results in HPCI Inoperability

Enclosed is Licensee Event Report 249/2010-003-00, "Steam Leak Results in HPCI Inoperability". This event is being reported in accordance with 10 CFR 50.73(a)(2)(v)(D), Any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident.

There are no regulatory commitments contained in this submittal.

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

Respectfully,

Tim Hanley
Site Vice President
Dresden Nuclear Power Station

Enclosure

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

IE22
NRR

NRC FORM 366 (10-2010) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 10/31/2013

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 FOIA/Privacy Section (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet 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.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

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4. TITLE

Steam Leak Results in HPCI Inoperability

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
									N/A	05000
11	26	2010	2010	003	00	01	25	2011	FACILITY NAME: N/A	DOCKET NUMBER: 05000

9. OPERATING MODE

1

10. POWER LEVEL

020

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

- ☐ 20.2201(b)
- ☐ 20.2201(d)
- ☐ 20.2203(a)(1)
- ☐ 20.2203(a)(2)(i)
- ☐ 20.2203(a)(2)(ii)
- ☐ 20.2203(a)(2)(iii)
- ☐ 20.2203(a)(2)(iv)
- ☐ 20.2203(a)(2)(v)
- ☐ 20.2203(a)(2)(vi)
- ☐ 20.2203(a)(3)(i)
- ☐ 20.2203(a)(3)(ii)
- ☐ 20.2203(a)(4)
- ☐ 50.36(c)(1)(i)(A)
- ☐ 50.36(c)(1)(ii)(A)
- ☐ 50.36(c)(2)
- ☐ 50.46(a)(3)(ii)
- ☐ 50.73(a)(2)(i)(A)
- ☐ 50.73(a)(2)(i)(B)
- ☐ 50.73(a)(2)(i)(C)
- ☐ 50.73(a)(2)(ii)(A)
- ☐ 50.73(a)(2)(ii)(B)
- ☐ 50.73(a)(2)(iii)
- ☐ 50.73(a)(2)(iv)(A)
- ☐ 50.73(a)(2)(v)(A)
- ☐ 50.73(a)(2)(v)(B)
- ☐ 50.73(a)(2)(v)(C)
- ☒ 50.73(a)(2)(v)(D)
- ☐ 50.73(a)(2)(vii)
- ☐ 50.73(a)(2)(viii)(A)
- ☐ 50.73(a)(2)(viii)(B)
- ☐ 50.73(a)(2)(ix)(A)
- ☐ 50.73(a)(2)(x)
- ☐ 73.71(a)(4)
- ☐ 73.71(a)(5)
- ☐ OTHER

Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

NAME	TELEPHONE NUMBER *(Include Area Code)*
Riley Ruffin – Regulatory Specialist	815-416-2815

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

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 26, 2010, during plant startup from a refueling outage, High Pressure Coolant Injection (HPCI) system was being tested in accordance with the plant's technical specifications. Testing was commenced at approximately 1700 hours CST. The HPCI pump was started as indicated by rising pump discharge pressure and flow. During the test, the Main Control Room received fire detection system alarms for the HPCI pump room. The HPCI turbine had developed a steam leak from the turbine steam chest. The HPCI turbine was manually tripped and the testing secured until repairs were made.

The cause of the steam leak is less than adequate torque on four studs/nuts. There are three potential factors that could have resulted in the torque values being less that required. These factors are: 1) the bolting relaxing during heat up and cool down between the low pressure and high pressure surveillance tests; 2) improper use of the hydraulic torque wrench; and 3) no additional torque was applied to bolts following the first pass. None of the above items could be confirmed.

Following the shutdown of the system, maintenance personnel re-torqued the turbine steam chest. The system was re-started and the high pressure HPCI test was successfully completed. No leaks were identified.

The safety significance of this condition is low. Automatic Depressurization and Low Pressure Emergency Core Cooling System were available and capable of providing makeup to the reactor vessel inventory. The health and safety of the public was not compromised as a result of this condition.

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NARRATIVE

PLANT AND SYSTEM IDENTIFICATION

Dresden Nuclear Power Station (DNPS) Unit 3 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: 03 Event Date: 11-26-2010 Event Time: 1734 hours CST
Reactor Mode: 1 Mode Name: Power Operation Power Level: 020 percent

B. Description of Event:

On November 26, 2010, Dresden Unit 3 restarted from a refueling outage. As a part of startup activities, the High Pressure Coolant Injection (HPCI) [BJ] system is required to be tested in accordance with Technical Specification (TS) 3.5.1. TS Surveillance Requirement (SR) 3.5.1.7 requires that the HPCI system develop a flow rate greater than or equal to 5000 gpm against a system head corresponding to reactor pressure. This test is performed with the reactor vessel pressure less than or equal to180 psig. Additionally, if maintenance has been performed which can affect system performance, SR 3.5.1.6 requires that the HPCI system develop a flow rate greater than or equal to 5000 gpm against a system head corresponding to reactor pressure. This test is performed with the reactor vessel pressure between 920 and 1005 psig. In each test, the HPCI system is started and allowed to recirculate water to the Condensate Storage Tanks [KA].

On the morning of November 26, 2010, the low pressure test had been successfully completed. No leaks had been observed during this test. Following the successful completion of the low pressure test, operations personnel continued with plant startup. Once reactor vessel pressure had reached 920 psig, personnel prepared for the HPCI high pressure test.

At approximately 1700 hours, plant personnel commenced the high pressure HPCI test to complete the required in-service testing following maintenance. Steam was supplied to the turbine and the pump ramped up to speed. At approximately 1734 hours, the Main Control Room received fire detection [IC] alarms for the Unit 3 HPCI pump room. In-field operations personnel reported to the Main Control Room that steam was leaking in the HPCI pump room. The HPCI turbine was manually tripped and the test was suspended. It was discovered that a large steam leak had developed between the control valve rack and the turbine steam chest.

Following the failure of HPCI system, the required actions of TS 3.5.1 Condition G were taken. As a part of the required actions, Operation personnel verified that the Isolation Condenser (IC) [BL] system was operable.

The HPCI system was taken out of service to allow maintenance to be performed. A maintenance work package was developed to re-torque the HPCI control valve rack. During the re-torque activity, Maintenance personnel identified four (4) nuts which were tightened an additional two flats. The remaining thirty-six nuts were found tight. Following completion of the re-torque activity, the HPCI system was returned to service. On November 27, 2010, the HPCI high pressure test was successfully completed and the system declared OPERABLE.

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NARRATIVE

C. Cause of Event:

During the Unit 3 refueling outage, maintenance was performed on the HPCI turbine control valves as a part of twelve year preventive maintenance to inspect the HPCI turbine. The control valve rack was disassembled and removed from the turbine steam chest to allow internal inspections. Based on the inspections, no repairs were required to be performed.

The control valve rack was re-installed onto the steam chest and all nuts were initially torqued to 150 ft-lbs in order to seat the sealing surfaces. Once the seating pass was complete, all nuts were torqued to 1510 ft-lbs. The nuts were torqued using a hydraulic torque wrench which had been calibrated prior to use.

The low pressure HPCI test was performed following reassembly of the HPCI turbine and control valves and there was no evidence of a steam leak during or following the test. However, later in the day, the HPCI turbine developed the steam leak during the high pressure post maintenance test.

Personnel that had reassembled the control valve rack and steam chest stated that 1510 ft-lbs were applied until there was no movement on any nut. This torque range was in accordance with package work instructions.

Personnel that performed the re-torque torqued all nuts to 1585 ft-lbs, which is in accordance with work instructions, and found little or no movement on thirty-six of the forty nuts. The remaining four nuts were tightened approximately two flats.

The cause of the steam leak is inadequate torque on four nuts connecting the control valve rack to the turbine steam chest.

Based on the subsequent investigation, there are three potential factors that could have resulted in less than adequate torque. Possible causes are:

- During heat up and the subsequent cool down that occurred between the high and low pressure HPCI test, the bolting relaxed causing improper torque.
- Improper use or set up of the hydraulic torque wrench by the Maintenance personnel.
- During the final pass following the initial seating pass, no additional torque was applied to the four nuts.

D. Safety Analysis:

The safety significance of this condition is low. The Automatic Depressurization and all Low Pressure Emergency Core Cooling Systems were available to provide makeup to the reactor vessel inventory in the event of an accident or transient. The IC system was available for reactor vessel pressure control if use had been required. Therefore, health and safety of the public was not compromised as a result of this condition.

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NARRATIVE

E. Corrective Actions:

The HPCI control valve rack was successfully re-torqued to the turbine steam chest and the high pressure HPCI test completed satisfactorily.

System Engineering is evaluating whether to re-torque the control valve rack to the steam chest connection between the low pressure and high pressure HPCI tests.

System Engineering is evaluating including the HPCI turbine and its components in the Operational Critical Component Program for future maintenance.

A Training Request is being generated to perform refresher training to all qualified personnel on hydraulic torque wrenches and bolted connections.

F. Previous Occurrences:

A review of DNPS Licensee Event Reports (LERs) for the last three years did not identify any LERs associated with HPCI inoperabilities or failures as a result of steam leaks.

G. Component Failure Data:

Not Applicable