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Dresden Nuclear Power Station
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10 CFR 50.73

SVPLTR # 08-0037

June 24, 2008

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

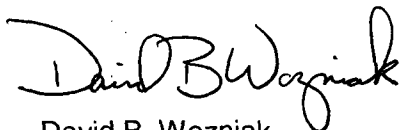
Dresden Nuclear Power Station, Unit No. 2
Renewed Facility Operating License No. DPR 19
NRC Docket No. 50-237

Subject: Licensee Event Report 237/2008-004-00, "Non-Conservative Core Spray Flow Utilized in LOCA Analysis"

Enclosed is Licensee Event Report 237/2008-004-00, "Non-Conservative Core Spray Flow Utilized in LOCA Analysis," for Dresden Nuclear Power Station Unit 2. This event involves a non-conservative analysis by the fuel vendor (Westinghouse) that affected compliance with the peak cladding temperature requirements stated in 10 CFR 50.46(b)(1). As a result, this event is being reported in accordance with both 10 CFR 50.46(a)(3)(ii) and 10 CFR 50.73(a)(2)(ii)(B), "The nuclear power plant being in an unanalyzed condition that significantly degraded plant safety." There are no regulatory commitments contained in this submittal.

Should you have any questions concerning this report, please contact Mr. Bob Rybak, Acting Regulatory Assurance Manager, at (815) 416-2800.

Respectfully,



David B. Wozniak
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 (9-2007)		U.S. NUCLEAR REGULATORY COMMISSION		APPROVED BY OMB: NO. 3150-0104 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 Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@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.		EXPIRES: 08/31/2010					
LICENSEE EVENT REPORT (LER) (See reverse for required number of digits/characters for each block)											
1. FACILITY NAME Dresden Nuclear Power Station, Unit 2					2. DOCKET NUMBER 05000237		3. PAGE 1 OF 4				
4. TITLE Non-Conservative Core Spray Flow Utilized in LOCA Analysis											
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
04	25	2008	2008	004	00	06	24	2008	N/A		N/A
9. OPERATING MODE 1			11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)								
10. POWER LEVEL 099			<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 checked="" 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 checked="" 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 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 type="checkbox"/> 50.73(a)(2)(v)(D)								
			Specify in Abstract below or in NRC Form 366A								
12. LICENSEE CONTACT FOR THIS LER											
FACILITY NAME Dresden Nuclear Power Station – Ali Abbasi									TELEPHONE NUMBER (Include Area Code) (815) 416-2811		
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		
N/A					N/A						
14. SUPPLEMENTAL REPORT EXPECTED <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO									15. EXPECTED SUBMISSION DATE		
									MONTH	DAY	YEAR
ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)											
<p>On April 25, 2008, the fuel vendor (Westinghouse) notified Exelon of a non-conservatism in the Large Break - Loss of Coolant Analysis affecting Dresden Nuclear Power Station, Unit 2. The non-conservatism involved the amount of Low Pressure Core Spray (LPCS) flow that actually reaches the reactor core during a postulated Large Break - Loss of Coolant Analysis event. For Dresden Unit 2, the error resulted in an increase of 80°F in the calculated Peak Cladding Temperature, resulting in exceeding the Peak Cladding Temperature acceptance criterion of 2200°F by 30°F. Dresden Operations took immediate actions to apply a Maximum Average Planar Linear Heat Generation Rate (MAPLHGR) administrative limit on Dresden Unit 2 to bring the plant configuration into compliance with 10 CFR 50.46 requirements.</p> <p>Based on the results of the cause evaluation performed by Westinghouse, the apparent cause of this error was that the author and verifier of the Westinghouse analysis had an incomplete understanding of the evaluation model, coupled with a false sense of security due both to the bounding system response being essentially the same as the original response and by the fact that the MAPLHGR margin recovery items had been developed by a panel of technical experts.</p> <p>Additionally, the Exelon subject matter experts do not have detailed knowledge of each fuel vendor's methodology and codes, and did not adequately challenge why the LPCS flow values used were bounding for Unit 2.</p>											

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

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Dresden Nuclear Power Station, Unit 2	05000237	YEAR	SEQUENTIAL NUMBER	REV NO.	2 OF 4
		2008	- 004	- 00	

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.

A. Plant Conditions Prior to Event:

Unit: 02 Event Date: 04-25-2008
Reactor Mode: 1 Mode Name: Power Operation Power Level: 99 percent
Reactor Coolant System Pressure: Approximately 1000 psig

B. Description of Event:

On April 25, 2008, the fuel vendor (Westinghouse) notified Exelon of a non-conservatism in the Large Break Loss of Coolant Analysis (LBLOCA) analysis for Dresden Unit 2. The non-conservatism involved the amount of Low Pressure Core Spray (LPCS) flow that actually reaches the reactor core during a LBLOCA event. Several leakage paths can exist between the reactor vessel core spray penetration and the core spray header nozzles that inject flow above the reactor core. This leakage reduces the flow from the core spray header nozzles. The LBLOCA results, including the Peak Cladding Temperature (PCT), are sensitive to the amount of core spray flow reaching the reactor core region. This identified error resulted in an increase of 80°F in the calculated PCT. The 10 CFR 50.46 PCT acceptance criterion of 2200°F was exceeded by 30°F.

In the original Westinghouse analysis for Quad Cities 1 & 2 and Dresden 2 & 3, a bounding modeling approach for the core spray flow, including leakage values, was developed for all four units. However, the initial LOCA analysis results with this approach were overly restrictive and additional Maximum Average Planar Linear Heat Generation Rate (MAPLHGR) margin was required. The core spray flow modeling was reassessed, utilizing more detailed unit specific information, including LOCA design inputs from Exelon, in an attempt to reduce the conservatism in the bounding modeling approach. During this reanalysis, the Dresden Unit 2 non-conservative error was introduced.

During the acceptance review of the Westinghouse reanalysis, the Exelon subject matter experts (SMEs) accepted the core spray flow modeling justification provided by Westinghouse. The Exelon SMEs, while knowledgeable in transients and LOCA, do not have detailed knowledge of each fuel vendor's methodology and codes, and did not adequately challenge why the revised in-shroud core spray leakage values were bounding for Unit 2.

Westinghouse's application of the Exelon supplied core spray values was subsequently identified by Westinghouse engineers as incorrect (non-conservative) for Dresden Unit 2.

Upon discovery of the non-conservative error, Dresden Operations took immediate actions to apply a maximum average planar linear heat generation rate (MAPLHGR) administrative limit on Dresden Unit 2 to bring the plant configuration into compliance with 10CFR50.46 requirements.

On April 25, 2008 at 1829 hours, an Event Notification to the NRC was made. On May 23, 2008, a 30-day followup report was submitted in accordance with the 10 CFR 50.46(a)(3)(ii) requirements.

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NARRATIVE

This Licensee Event Report is being submitted in accordance with 10 CFR 50.73(a)(2)(ii)(B): "The nuclear power plant being in an unanalyzed condition that significantly degraded plant safety."

C. Cause of Event:

Based on the results of the cause evaluation performed by Westinghouse, the apparent cause of this error was that the author and verifier of the Westinghouse analysis had an incomplete understanding of the evaluation model, coupled with a false sense of security due both to the bounding system response being essentially the same as the original response and by the fact that the MAPLHGR margin recovery items had been developed by a panel of technical experts.

A contributing cause was that the Exelon SMEs did not adequately challenge why the revised in-shroud core spray leakage values were bounding for Unit 2.

D. Safety Analysis:

The safety significance of the event is minimal. During the duration of the event, Dresden Nuclear Power Station continued to operate within the requirements of the Technical Specifications. The error was limited to the calculation for a postulated scenario. Therefore, the consequences of this event had minimal impact on the health and safety of the public and reactor safety.

E. Corrective Actions:

Corrective actions implemented or planned by Westinghouse include:

- Correction of calculation notes, reports, etc. impacted by the non-conservative LPCS flows
- A quality stand-down with employees to provide lessons learned from the cause evaluation
- Procedure revision and additional guidance regarding the direction of conservatism and shroud leakages

Corrective actions planned by Exelon include:

- Training to address identification of critical parameters, and methods to evaluate and minimize risks associated with these critical parameters
- Reinforcement of importance of technical rigor and questioning attitude

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F. Previous Occurrences:

A search was conducted of the Issue Report database for the last two years concerning any LER discussing the area of inadequate design review for plant impact. One previous LER event was found.

05000237/1998-002-00, Unit 2 Reactor Scram From A Main Turbine Trip Due To Inadequate Design Review Performed During Modification

The root cause of the Unit 2 scram was found to be inadequate design review during the modification of Yarway level switch replacement. During development of the modification, the impact that the modification would have on plant maintenance activities was not identified by the design team (Design Engineering, Plant Engineering, Maintenance, etc.). The safety significance of the event was minimal since all plant systems operated as designed.

Corrective Action from this event was limited to emphasizing to engineers the necessity of thorough design reviews, detailed industry event database searches, and the need for detailed questioning of maintenance and operations personnel during design scope meetings. This event differs enough in cause that the previous corrective actions would not have prevented the 2008 Westinghouse LBLOCA analysis event.

An OPEX review was also conducted and no events were identified that resulted in further insight for this report.

G. Component Failure Data:

NA