

RS-08-073

May 23, 2008

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

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

Subject: Plant Specific ECCS Evaluation Changes – 10 CFR 50.46 30-Day Report for Fuel Type SVEA-96 Optima2

Reference: Letter from D. Bost (Exelon Generation Company, LLC) to U. S. NRC, "Plant Specific ECCS Evaluation Changes – 10 CFR 50.46 Report," dated October 31, 2007

In accordance with 10 CFR 50.46, "Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors," paragraph (a)(3)(ii), Exelon Generation Company, LLC (EGC), is submitting this letter and its attachment to notify the NRC of changes or errors discovered in the Dresden Nuclear Power Station (DNPS) Unit 2 plant specific emergency core cooling (ECCS) evaluation for Westinghouse fuel type SVEA-96 Optima2 that have been determined to be significant. This submittal meets the requirements of 10 CFR 50.46(a)(3)(ii) for submittal of a report within 30 days.

In the referenced letter, EGC provided the NRC with the annual 10 CFR 50.46 Report for DNPS Units 2 and 3. The attachment to that letter identified the use of ATRIUM-9B and GE 14 fuel in the DNPS Unit 2 reactor core. Subsequent to the submittal of this evaluation, EGC partially loaded the reactor core of DNPS Unit 2 with Westinghouse SVEA-96 Optima2 fuel. In order to support the introduction of this new fuel type, EGC implemented the Westinghouse Loss of Coolant Accident (LOCA) model. At that time, the calculated peak cladding temperature (PCT) in the Westinghouse LOCA model was the same value as that provided in the referenced letter.

On April 24, 2008, Westinghouse initially notified EGC of a potential non-conservative assumption in the Westinghouse 10 CFR 50, Appendix K LOCA analysis for SVEA-96 Optima2 fuel in DNPS Unit 2 that resulted in an increase of calculated net PCT of 80 degrees Fahrenheit (°F) to a value of 2230 °F. Based on further discussions with Westinghouse, EGC confirmed the non-conservative assumption on April 25, 2008, at which point EGC notified the NRC in accordance with 10 CFR 50.72, "Immediate notification requirements for operating nuclear power reactors," (i.e., Event Number 44168).

In 2007, Westinghouse performed a LOCA analysis for DNPS Units 2 and 3. This analysis assumed that the DNPS Unit 3 low pressure core spray (LPCS) flow would bound the DNPS Unit 2 flow, and thus was used as the assumed flow value for both Unit 2 and Unit 3.

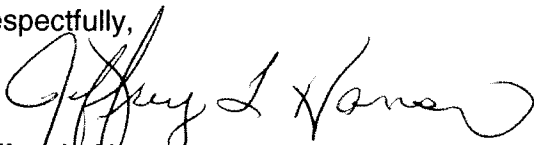
In April 2008, while performing a scoping study to support a potential DNPS Unit 2 LPCS modification, Westinghouse discovered that the DNPS Unit 2 LPCS flow was not bounded by the Unit 3 flow, as previously assumed. Utilizing the DNPS Unit 2 LPCS flow value in the LOCA analysis resulted in the PCT increase of 80 °F. Since the Unit 3 LPCS flow value input for the LOCA analysis was correct, this error did not affect the DNPS Unit 3 LOCA analysis of record.

Subsequent to identification of the incorrect DNPS Unit 2 LPCS flow assumption, EGC determined that a 2.4 percent reduction in the maximum average planar heat generation rate (MAPLGHR) limit would offset the 80 °F increase in the limiting PCT. DNPS Unit 2 has been operating with more than 3 percent margin in MAPLGHR since the start of the current operating cycle (i.e., November 2007). EGC has implemented administrative limits for DNPS Unit 2 to maintain these margins.

The attachment to this letter provides the PCT value and the associated "rack-up" sheets for SVEA-96 Optima2 fuel in DNPS Unit 2, assuming a 2.4 percent reduction in the administrative MAPLGHR limit. There are no analytical changes required for fuel types ATRIUM-9B and GE 14 that were previously submitted in the referenced letter. Additionally, EGC will submit a Licensee Event Report on or before June 24, 2008, in accordance with the requirements of 10 CFR 50.73, "Licensee event report system," and 10 CFR 50.46

If there are any questions concerning this letter, please contact Mr. John L. Schrage at (630) 657-2821.

Respectfully,



Jeffrey L. Hansen
Manager - Licensing

Attachment: Dresden Nuclear Power Station Unit 2 - 10 CFR 50.46 Report 30-Day Report for Fuel Type SVEA-96 Optima2

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

Attachment
Dresden Nuclear Power Station Unit 2
10 CFR 50.46 30-Day Report for Fuel Type SVEA-96 Optima2

PLANT NAME: Dresden Nuclear Power Station, Unit 2
 ECCS EVALUATION MODEL: USA5
 REPORT REVISION DATE: 05/06/2008
 CURRENT OPERATING CYCLE: 21

ANALYSIS OF RECORD

Evaluation Model: "Westinghouse BWR ECCS Evaluation Model: Supplement 3 to Code Description, Qualification and Application to SVEA-96 Optima2 Fuel," WCAP-16078-P-A, November 2004.

Calculations:

"Dresden 2 & 3 LOCA Analysis for SVEA-96 Optima2 Fuel," OPTIMA2-TR021DR-LOCA, Revision 2, Westinghouse Electric Company LLC, June 2007.

Fuel Analyzed in Calculation: SVEA-96 Optima2
 Limiting Fuel Type: SVEA-96 Optima2
 Limiting Single Failure: LPCI injection valve
 Limiting Break Size and Location: 1.0 double-ended guillotine break in the recirculation pump suction line

Reference Peak Cladding Temperature (PCT) PCT = 2150°F

MARGIN ALLOCATION

A. PRIOR LOCA MODEL ASSESSMENTS

None – new LOCA analysis	$\Delta PCT = 0^\circ F$
PCT	2150°F

B. CURRENT LOCA MODEL ASSESSMENTS

New analysis (See Note 1)	$\Delta PCT = 0^\circ F$
Non-Conservative LPCS performance parameters (See Note 2)	$\Delta PCT = +80^\circ F$
MAPLHGR limit reduction implemented for Dresden unit 2 cycle 21 (See Note 2)	$\Delta PCT = -80^\circ F$
Total PCT change from current assessments	$\Sigma \Delta PCT = 0^\circ F$
Cumulative PCT change from current assessments	$\Sigma \Delta PCT = 160^\circ F$
PCT	2150°F

**Attachment
Dresden Nuclear Power Station Unit 2
10 CFR 50.46 30-Day Report for Fuel Type SVEA-96 Optima2
Assessment Notes**

1. Current LOCA Model Assessment

With Dresden Nuclear Power Station (DNPS) Unit 2 Cycle 21 startup in November 2007, Unit 2 implemented a plant-specific LOCA Analysis for DNPS. This analysis applies to operation of the Westinghouse Optima2 fuel in the DNPS reactors. This analysis applies specific inputs and assumptions in the LOCA calculation approved in the licensed Westinghouse methodology. Included are:

- a. Containment back pressure – the amount of containment overpressure credited in accordance with acceptance letter issued by the NRC,
- b. Proportional ECCS leakage,
- c. ECCS temperature reduction,
- d. Plant-specific ECCS parameters including the ECCS flow and leakages specific to Dresden,
- e. Emergency Diesel Generator load sequencing time delays specific to Dresden,
- f. Two channel model, and
- g. Improved definition of end of lower plenum flashing used to terminate non-zero heat transfer coefficient.

Reference:

"Dresden 2 & 3 LOCA Analysis for SVEA-96 Optima2 Fuel," OPTIMA2-TR021DR-LOCA, Revision 2, Westinghouse Electric Company LLC, June 2007.

2. Current LOCA Model Assessment

Westinghouse performed the LOCA analysis for DNPS Unit 2 (D2) and Unit 3 (D3) as documented in Reference 1. This analysis used a value for low pressure core spray (LPCS) performance based on an assumption that the flow rates from the D3 LPCS system bounded D2. In April 2008, Westinghouse discovered the use of the D3 LPCS performance for D2 is non-conservative. There is no impact on D3. This error resulted in an increased PCT of 80 °F. With a starting PCT value of 2150 °F, as documented in Reference 1, D2 exceeded the 10 CFR 50.46 acceptance criterion of 2200 °F for PCT. In Reference 2, Westinghouse determined the Maximum Average Planar Linear Heat Generation Rate (MAPLHGR) limit reduction necessary for D2 to meet all 10 CFR 50.46 criteria while maintaining a PCT at or below the licensing basis value of 2150 °F for the entire Cycle 21 operation. DNPS has implemented the MAPLHGR limit reduction for unit 2. Therefore, the net PCT remains at 2150 °F.

References:

- (1) "Dresden 2 & 3 LOCA Analysis for SVEA-96 Optima2 Fuel," OPTIMA2-TR021DR-LOCA, Revision 2, Westinghouse Electric Company LLC, June 2007.
- (2) "Impact Assessment of Dresden 2 Non-Conservative LPCS Performance Parameters," Westinghouse Letter LTR-LIS-08-325, April 2008.