

April 7, 2016

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

R.E. Ginna Nuclear Power Plant  
Renewed Facility Operating License No. DPR-18  
NRC Docket No. 50-244

Subject: 2016 10 CFR 50.46 Annual Report

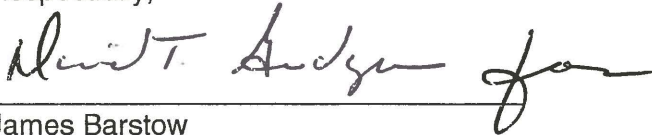
Reference: Letter from J. Barstow (Exelon Generation Company, LLC) to  
U.S. Nuclear Regulatory Commission, "2015 10 CFR 50.46 Annual  
Report," dated April 9, 2015

The purpose of this letter is to submit the 10 CFR 50.46 annual reporting information for R.E. Ginna Nuclear Power Plant. The referenced document is the most recent annual 10 CFR 50.46 Report report submitted to the U.S. Nuclear Regulatory Commission.

Two attachments are included with this letter that provide the current Ginna 10 CFR 50.46 status. Attachment 1 provides the Peak Cladding Temperature (PCT) "rack-up" sheets. Attachment 2, "Assessment Notes," contains a detailed description of each change/error reported.

There are no commitments contained in this letter. If you have any questions, please contact Ron Reynolds at 610-765-5247.

Respectfully,



James Barstow  
Director - Licensing & Regulatory Affairs  
Exelon Generation Company, LLC

Attachments: 1) Peak Cladding Temperature Rack-Up Sheet for R.E. Ginna Nuclear  
Power Plant  
2) Assessment Notes

cc: U.S. NRC Administrator, Region I  
U.S. NRC Project Manager, Ginna  
U.S. NRC Senior Resident Inspector, Ginna

**ATTACHMENT 1**

**10 CFR 50.46**

**“Acceptance criteria for emergency core cooling systems  
for light-water nuclear power reactors”**

**Annual Report of the Emergency Core Cooling System  
Evaluation Model Changes and Errors**

**Assessments as of April 7, 2016**

**Peak Cladding Temperature Rack-Up Sheet for**

**R.E. Ginna Nuclear Power Plant**

PLANT NAME: Ginna  
ECCS EVALUATION MODEL: Small Break Loss of Coolant Accident (SBLOCA)  
REPORT REVISION DATE: 4/7/2016  
CURRENT OPERATING CYCLE: 39

## ANALYSIS OF RECORD

Evaluation Model: NOTRUMP  
Calculation: Westinghouse CN-LIS-04-206, April 2005  
Fuel: 422 Vantage+  
Limiting Fuel Type: 422 Vantage+  
Limiting Single Failure: Diesel Generator Failure to Start  
Limiting Break Size and Location: 2-inch Equivalent High T<sub>avg</sub> Cold Leg Break  
Reference Peak Cladding Temperature (PCT) PCT = 1167.0°F

## MARGIN ALLOCATION

### A. PRIOR LOSS OF COOLANT ACCIDENT (LOCA) MODEL ASSESSMENTS

10 CFR 50.46 report dated April 30, 2007 (Note 1)	$\Delta PCT = 0^{\circ}F$
10 CFR 50.46 report dated February 10, 2009 (Note 3)	$\Delta PCT = 0^{\circ}F$
10 CFR 50.46 report dated March 4, 2011 (Note 5)	$\Delta PCT = 0^{\circ}F$
10 CFR 50.46 report dated March 27, 2012 (Note 6)	$\Delta PCT = 0^{\circ}F$
10 CFR 50.46 report dated April 1, 2013 (Note 8)	$\Delta PCT = 0^{\circ}F$
10 CFR 50.46 report dated April 9, 2014 (Note 9)	$\Delta PCT = 0^{\circ}F$
10 CFR 50.46 report dated April 9, 2015 (Note 10)	$\Delta PCT = 0^{\circ}F$
<b>NET PCT</b>	<b>PCT = 1167.0°F</b>

### B. CURRENT LOCA MODEL ASSESSMENTS

General Code Maintenance (Note 11)	$\Delta PCT = 0^{\circ}F$
Effects of Fuel Reconstitution (Note 12)	$\Delta PCT = 0^{\circ}F$
Total PCT change from current assessments	$\sum \Delta PCT = 0^{\circ}F$
Cumulative PCT change from current assessments	$\sum  \Delta PCT  = 0^{\circ}F$
<b>NET PCT</b>	<b>PCT = 1167.0°F</b>

PLANT NAME: Ginna  
ECCS EVALUATION MODEL: Large Break Loss of Coolant Accident (LBLOCA)  
REPORT REVISION DATE: 4/7/2016  
CURRENT OPERATING CYCLE: 39

## ANALYSIS OF RECORD

Evaluation Model: ASTRUM (2004)  
Calculation: Westinghouse CN-LIS-05-11, April 2005  
Fuel: 422 Vantage+  
Limiting Fuel Type: 422 Vantage+  
Limiting Single Failure: Loss of one train of ECCS flow  
Limiting Break Size and Location: Cold Leg Split Break  
Reference PCT

PCT = 1870.0°F

## MARGIN ALLOCATION

### A. PRIOR LOSS OF COOLANT ACCIDENT (LOCA) MODEL ASSESSMENTS

10 CFR 50.46 report dated April 30, 2007 (Note 1)	$\Delta PCT = 0^{\circ}F$
10 CFR 50.46 report dated May 4, 2008 (Note 2)	$\Delta PCT = + 37^{\circ}F$
10 CFR 50.46 report dated February 10, 2009 (Note 3)	$\Delta PCT = 0^{\circ}F$
10 CFR 50.46 report dated March 26, 2010 (Note 4)	$\Delta PCT = 0^{\circ}F$
10 CFR 50.46 report dated March 4, 2011 (Note 5)	$\Delta PCT = 0^{\circ}F$
10 CFR 50.46 report dated March 27, 2012 (Note 6)	$\Delta PCT = 0^{\circ}F$
10 CFR 50.46 report dated August 16, 2012 (Note 7)	$\Delta PCT = +134^{\circ}F$
10 CFR 50.46 report dated April 1, 2013 (Note 8)	$\Delta PCT = +75^{\circ}F$
10 CFR 50.46 report dated April 9, 2014 (Note 9)	$\Delta PCT = +2^{\circ}F$
10 CFR 50.46 report dated April 9, 2015 (Note 10)	$\Delta PCT = 0^{\circ}F$
<b>NET PCT</b>	<b>PCT =2118.0°F</b>

### B. CURRENT LOCA MODEL ASSESSMENTS

General Code Maintenance (Note 11)	$\Delta PCT = 0^{\circ}F$
Effects of Fuel Reconstitution (Note 12)	$\Delta PCT = +1^{\circ}F$
Total PCT change from current assessments	$\sum \Delta PCT = +1^{\circ}F$
Cumulative PCT change from current assessments	$\sum  \Delta PCT  = 1^{\circ}F$
<b>NET PCT</b>	<b>PCT =2119.0°F</b>

**ATTACHMENT 2**

**10 CFR 50.46**

**“Acceptance criteria for emergency core cooling systems  
for light-water nuclear power reactors”**

**Annual Report of the Emergency Core Cooling System  
Evaluation Model Changes and Errors**

**Assessments as of April 7, 2016**

**Assessment Notes**

**R.E. Ginna Nuclear Power Plant**

1. Prior LOCA Model Assessment

The 10 CFR 50.46 report dated April 30, 2007, reported new licensing basis Peak Cladding Temperature (PCT) for Small Break Loss of Coolant Accident (SBLOCA) and Large Break Loss of Coolant Accident (LBLOCA) analyses to support fuel assembly transition from OFA to 422 Vantage+ and extended power uprate. The new licensing basis PCT reported for SBLOCA and LBLOCA are 1167°F and 1870°F, respectively.

2. Prior LOCA Model Assessment

The 10 CFR 50.46 report dated May 4, 2008, reported an evaluation for LBLOCA related to HOTSPOT fuel relocation error which resulted in a 37°F PCT assessment.

3. Prior LOCA Model Assessment

The 10 CFR 50.46 report dated February 10, 2009, reported evaluations for SBLOCA and LBLOCA model changes which resulted in 0°F PCT change.

4. Prior LOCA Model Assessment

The 10 CFR 50.46 report dated March 26, 2010, reported evaluations for LBLOCA model changes which resulted in 0°F PCT change.

5. Prior LOCA Model Assessment

The 10 CFR 50.46 report dated March 4, 2011, reported evaluations for SBLOCA and LBLOCA model changes which resulted in 0°F PCT change.

6. Prior LOCA Model Assessment

The 10 CFR 50.46 report dated March 27, 2012, reported evaluations for SBLOCA and LBLOCA model changes which resulted in 0°F PCT change.

7. Prior LOCA Model Assessment

The 30-day 10 CFR 50.46 report dated August 16, 2012, reported evaluations for fuel pellet thermal conductivity degradation (TCD) and peaking factor burndown, and design input change assessments which resulted in a 134°F PCT impact for LBLOCA.

8. Prior LOCA Model Assessment

The 10 CFR 50.46 report dated April 1, 2013, reported evaluations for SBLOCA model changes which resulted in 0°F PCT impact. A LBLOCA assessment for the evaluation of an elevated initial containment and accumulator temperature was submitted in a License Amendment Request for NRC review and approval. The assessment resulted in a 75°F PCT impact. This increase in temperature was approved in an NRC Safety Evaluation Report (SER) (ML14232A331) dated August 21, 2014. The SER (ML14232A331) evaluated the 10 CFR 50.46 reporting criteria explicitly.

9. Prior LOCA Model Assessment

The 10 CFR 50.46 report dated April 9, 2014, reported evaluations for SBLOCA model changes which resulted in 0°F PCT impact. A LBLOCA assessment was reported related to revised heat transfer multiplier distribution which resulted in a 2°F PCT assessment.

10. Prior LOCA Model Assessment

The 10 CFR 50.46 report dated April 9, 2015 reported general code maintenance for both LBLOCA and SBLOCA. An error in Decay Group Uncertainty Factors against the LBLOCA model was reported. Additional, it reported errors in Fuel Rod Gap Conductance, Radiation Heat Transfer Model, and SBLOCA Pre-DNB Cladding Surface Heat Transfer Coefficient Calculation for the SBLOCA model. All changes resulted in 0 °F PCT impact.

11. Current LOCA Model Assessment – General Code Maintenance (SBLOCA)

Various changes have been made to enhance the usability of codes and to streamline future analyses. Examples of these changes include modifying input variable definitions, units and defaults; improving the input diagnostic checks; enhancing the code output; optimizing active coding; and eliminating inactive coding. These changes resulted in an estimated PCT impact of 0°F. There is no impact to LBLOCA.

12. Current LOCA Model Assessment – Effects of Fuel Reconstitution (LBLOCA & SBLOCA)

Ginna began inserting reconstituted fuel with 5 stainless steel filler rods starting in Cycle 39. The effects to SBLOCA are 0°F and the effects to LBLOCA are 1°F.