

RS-19-091

10 CFR 50.46

September 5, 2019

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

Braidwood Station, Units 1 and 2
Renewed Facility Operating License Nos. NPF-72 and NPF-77
NRC Docket Nos. STN-50-456 and STN-50-457

Byron Station, Units 1 and 2
Renewed Facility Operating License Nos. NPF-37 and NPF-66
NRC Docket Nos. STN-50-454 and STN-50-455

Subject: Supplement to RS-16-239: Revision to Exelon Generation Company, LLC
Commitment Relating to Large Break Loss of Coolant Accident (LBLOCA)
Analysis with an NRC Approved Emergency Core Cooling System (ECCS)
Evaluation Model that Explicitly Accounts for Thermal Conductivity Degradation
(TCD)

- References:
1. Letter from Patrick R. Simpson (Exelon Generation Company, LLC) to U.S.NRC, "Response to Request for Information Regarding the Thermal Conductivity Degradation and 10 CFR 50.46 Report," dated March 19, 2012
 2. Letter from Patrick R. Simpson (Exelon Generation Company, LLC) to U.S. NRC, "ECCS Evaluation Model Error - 10 CFR 50.46 Report," dated May 21, 2012
 3. Letter from David M. Gullott (Exelon Generation Company, LLC) to U.S. NRC, "Supplement to RS-12-037 and RS-12-087: Revision to Exelon Generation Company, LLC Commitment Relating to Large Break Loss of Coolant Accident (LBLOCA) Analysis with an NRC Approved Emergency Core Cooling System (ECCS) Evaluation Model that Explicitly Accounts for Thermal Conductivity Degradation (TCD)," dated December 14, 2016

In Reference 1, Exelon Generation Company, LLC (EGC) responded to an information request from the NRC associated with the effect of Thermal Conductivity Degradation (TCD) on peak cladding temperature in the Westinghouse Electric Company furnished realistic Emergency Core Cooling System (ECCS) evaluation models for Braidwood Station, Unit 2 and Byron Station, Unit 2. In Reference 2, EGC provided similar information for Braidwood Station, Unit 1 and Byron Station, Unit 1. References 1 and 2 estimated that the impact on the Large Break Loss of Coolant Accident (LBLOCA) evaluation model from fuel TCD represents a significant

change in Peak Clad Temperature (PCT) as defined in 10 CFR 50.46, "Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors," paragraph (a)(3)(i). Therefore, EGC included a proposed schedule for providing a reanalysis to show compliance with 10 CFR 50.46.

EGC evaluated the requirements for reanalysis specified in 10 CFR 50.46(a)(3)(i) and the proposed schedule for reanalysis was included in a regulatory commitment. The regulatory commitment specified in both References 1 and 2 is as follows:

"By December 15, 2016, EGC will submit to the NRC for review and approval a LBLOCA analysis that applies NRC approved methods that include the effects of fuel TCD for Braidwood Station, Unit 1 [Unit 2] and Byron Station, Unit 1 [Unit 2]. The date for the analysis submittal is contingent on the following milestones which must be completed in order to perform a revised licensing basis LBLOCA analysis with an NRC approved ECCS evaluation model that explicitly accounts for TCD:

1) NRC approval of a fuel performance analysis methodology that includes the effects of TCD. The new methodology for developing inputs to the LBLOCA evaluation model would replace the current licensing basis methodology for Braidwood Station, Unit 1 [Unit 2] and Byron Station, Unit 1 [Unit 2] that is described in WCAP-15063-P-A, Revision 1 with Errata, "Westinghouse Improved Performance Analysis and Design Model (PAD 4.0)."

2) NRC approval of a LBLOCA evaluation model that includes the effects of TCD and accommodates the rulemaking associated with the proposed 10 CFR 50.46c (Docket ID NRC-2008-0332). The new methodology would replace the current licensing basis methodology, WCAP-16009-P-A, "Realistic Large-Break LOCA Evaluation Methodology Using the Automated Statistical Treatment of Uncertainty Method (ASTRUM)."

Reference 3 revised the commitment to state:

"EGC will submit to the NRC for review and approval a LBLOCA analysis that applies NRC approved methods that include the effects of fuel TCD for Braidwood Station, Unit 1 [Unit 2] and Byron Station, Unit 1 [Unit 2]. The date for the analysis submittal is contingent on the following milestones which must be completed in order to perform a revised licensing basis LBLOCA analysis with an NRC approved ECCS evaluation model that explicitly accounts for TCD:

1) NRC approval of a fuel performance analysis methodology that includes the effects of TCD. The new methodology for developing inputs to the LBLOCA evaluation model would replace the current licensing basis methodology for Braidwood Station, Unit 1 [Unit 2] and Byron Station, Unit 1 [Unit 2] that is described in WCAP-15063-P-A, Revision 1 with Errata, "Westinghouse Improved Performance Analysis and Design Model (PAD 4.0)."

2) NRC approval of a LBLOCA evaluation model that includes the effects of TCD. The new methodology would replace the current licensing basis methodology, WCAP-16009-

P-A, "Realistic Large-Break LOCA Evaluation Methodology Using the Automated Statistical Treatment of Uncertainty Method (ASTRUM).

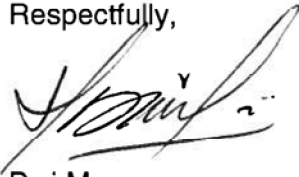
The revised commitment date is two years after completion of both items 1 and 2."

The NRC approved the LOCA methodology on September 12, 2017 (ML17226A225) and supporting codes (PAD5) on September 28, 2017 (ML17100A921). This would make EGC commitment date September 28, 2019. Schedule delays in receiving final vendor deliverable as a result of vendor error has resulted in EGC having insufficient time to prepare and transmit a License Amendment by the committed date. EGC is therefore revising the commitment date to March 28, 2020.

The revised commitments do not impact the ability of a system, structure or component to perform its intended safety function, thus the change is not significant to safety. This commitment change is being submitted for information only. There are no other new or revised regulatory commitments contained in this letter.

Should you have any questions concerning this letter, please contact Ms. Lisa M. Zurawski at (630) 657-2816.

Respectfully,



Dwi Murray
Sr. Manager – Licensing
Exelon Generation Company, LLC

Attachment: Revised Regulatory Commitments for Braidwood and Byron Stations, Units 1 and 2

cc: NRC Regional Administrator, Region III
NRC Senior Resident Inspector, Braidwood Station
NRC Senior Resident Inspector, Byron Station
NRC Project Manager, NRR — Braidwood and Byron Stations
Illinois Emergency Management Agency — Division of Nuclear Safety

ATTACHMENT

Revised Regulatory Commitments for Braidwood and Byron Stations, Units 1 and 2

The following list identifies those actions committed to by Exelon Generation Company, LLC, (EGC) in this submittal. Any other actions discussed in the submittal represent intended or planned actions by EGC, are described only for information, and are not regulatory commitments.

COMMITMENT	COMMITTED DATE OR "OUTAGE"	COMMITMENT TYPE	
		ONE-TIME ACTION (YES/NO)	PROGRAMMATIC (YES/NO)
<p>"EGC will submit to the NRC for review and approval a LBLOCA analysis that applies NRC approved methods that include the effects of fuel TCD for Braidwood Station, Unit 1 and Byron Station, Unit 1. The date for the analysis submittal is contingent on the following milestones which must be completed in order to perform a revised licensing basis LBLOCA analysis with an NRC approved ECCS evaluation model that explicitly accounts for TCD:</p> <p>1) NRC approval of a fuel performance analysis methodology that includes the effects of TCD. The new methodology for developing inputs to the LBLOCA evaluation model would replace the current licensing basis methodology for Braidwood Station, Unit 1 and Byron Station, Unit 1 that is described in WCAP-15063-P-A, Revision 1 with Errata, "Westinghouse Improved Performance Analysis and Design Model (PAD 4.0)."</p> <p>2) NRC approval of a LBLOCA evaluation model that includes the effects of TCD. The new methodology would replace the current licensing basis methodology, WCAP-16009-P-A, "Realistic Large-Break LOCA Evaluation Methodology Using the Automated Statistical Treatment of Uncertainty Method (ASTRUM).</p>	March 28, 2020	Yes	No

ATTACHMENT

Revised Regulatory Commitments for Braidwood and Byron Stations, Units 1 and 2

<p>"EGC will submit to the NRC for review and approval a LBLOCA analysis that applies NRC approved methods that include the effects of fuel TCD for Braidwood Station, Unit 2 and Byron Station, Unit 2. The date for the analysis submittal is contingent on the following milestones which must be completed in order to perform a revised licensing basis LBLOCA analysis with an NRC approved ECCS evaluation model that explicitly accounts for TCD:</p> <p>1) NRC approval of a fuel performance analysis methodology that includes the effects of TCD. The new methodology for developing inputs to the LBLOCA evaluation model would replace the current licensing basis methodology for Braidwood Station, Unit 2 and Byron Station, Unit 2 that is described in WCAP-15063-P-A, Revision 1 with Errata, "Westinghouse Improved Performance Analysis and Design Model (PAD 4.0)."</p> <p>2) NRC approval of a LBLOCA evaluation model that includes the effects of TCD. The new methodology would replace the current licensing basis methodology, WCAP-16009-P-A, "Realistic Large-Break LOCA Evaluation Methodology Using the Automated Statistical Treatment of Uncertainty Method (ASTRUM).</p>	March 28, 2020	Yes	No
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