



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001**

October 8, 2019

Mr. Bryan C. Hanson  
Senior Vice President  
Exelon Generation Company, LLC  
President and Chief Nuclear Officer  
Exelon Nuclear  
4300 Winfield Road  
Warrenville, IL 60555

**SUBJECT: PEACH BOTTOM ATOMIC POWER STATION, UNITS 2 AND 3 – CORRECTION REGARDING STAFF REVIEW OF SEISMIC PROBABILISTIC RISK ASSESSMENT ASSOCIATED WITH REEVALUATED SEISMIC HAZARD IMPLEMENTATION OF THE NEAR-TERM TASK FORCE RECOMMENDATION 2.1: SEISMIC (EPID NO. L-2018-JLD-0010)**

Dear Mr. Hanson:

The purpose of this letter is to provide a correction regarding the staff's evaluation of the Peach Bottom Atomic Power Station, Units 2 and 3 (Peach Bottom), seismic probabilistic risk assessment (SPRA), which was submitted in response to Near-Term Task Force (NTTF) Recommendation 2.1 "Seismic." The correction does not change the U.S. Nuclear Regulatory Commission (NRC) staff's previous conclusion that no further response or regulatory action associated with NTTF Recommendation 2.1 "Seismic" is required for Peach Bottom.

By letter dated March 12, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12053A340), the NRC issued a request for information under Title 10 of the *Code of Federal Regulations* Section 50.54(f) (hereafter referred to as the 50.54(f) letter). The request was issued as part of implementing lessons learned from the accident at the Fukushima Dai-ichi nuclear power plant. Enclosure 1 to the 50.54(f) letter requested that licensees reevaluate seismic hazards at their sites using present-day methodologies and guidance. Enclosure 1, Item (8), of the 50.54(f) letter requested that certain licensees complete an SPRA to determine if plant enhancements are warranted due to the change in the reevaluated seismic hazard compared to the site's design-basis seismic hazard.

By letter dated August 28, 2018 (ADAMS Accession No. ML18240A065), Exelon Generation Company, LLC (Exelon, the licensee), provided its SPRA submittal in response to Enclosure 1, Item (8) of the 50.54(f) letter, for Peach Bottom. The NRC staff reviewed the SPRA submittal and provided its evaluation by letter dated June 10, 2019 (ADAMS Accession No. ML19053A469). This review used the guidance in NRC staff memorandum dated August 29, 2017, titled, "Guidance for Determination of Appropriate Regulatory Action Based on Seismic Probabilistic Risk Assessment Submittals in Response to Near Term Task Force Recommendation 2.1: Seismic" (ADAMS Accession No. ML17146A200; hereafter referred to as the SPRA Screening Guidance) to develop a recommendation based on its review of the SPRAs submitted by licensees in response to the 50.54(f) letter.

During an internal self-assessment review, the staff recently uncovered an error in the spreadsheet used in the SPRA Screening Guidance to evaluate the Peach Bottom SPRA submittal. The correction of the error resulted in changes to certain numerical values that were documented in the staff's Peach Bottom SPRA evaluation. A description of the error and corrected values for the affected portions of the staff evaluation are provided in the enclosure to this letter. The staff has confirmed that the changes to the numerical values presented in the enclosure to this letter do not impact or change the NRC decision documented by the previously referenced staff evaluation dated June 10, 2019.

The NRC staff regrets any inconvenience this may have caused. If you have any questions, please contact me at (301) 415-2833, or via e-mail at [Peter.Bamford@nrc.gov](mailto:Peter.Bamford@nrc.gov).

Sincerely,

A handwritten signature in black ink that reads "Peter Bamford". The signature is fluid and cursive, with a large loop at the end of the last name.

Peter Bamford, Senior Project Manager  
Beyond-Design-Basis Management Branch  
Division of Licensing Projects  
Office of Nuclear Reactor Regulation

Docket Nos. 50-277 and 50-278

Enclosure:  
NRC Staff Correction Description

cc w/encl: Distribution via Listserv

## NRC Staff Correction Description

By letter dated August 28, 2018 (ADAMS Accession No. ML18240A065), Exelon Generation Company, LLC (Exelon, the licensee), provided its seismic probabilistic risk assessment (SPRA) submittal in response to Enclosure 1, Item (8) of the 50.54(f) letter [Title 10 of the *Code of Federal Regulations* Section 50.54(f), dated March 12, 2012] for Peach Bottom Atomic Power Station, Units 2 and 3 (Peach Bottom). The U.S. Nuclear Regulatory Commission (NRC) staff reviewed the SPRA submittal and provided its evaluation by letter dated June 10, 2019 (ADAMS Accession No. ML19053A469). This review used the guidance in NRC staff memorandum dated August 29, 2017, titled, "Guidance for Determination of Appropriate Regulatory Action Based on Seismic Probabilistic Risk Assessment Submittals in Response to Near Term Task Force Recommendation 2.1: Seismic" (ADAMS Accession No. ML17146A200; hereafter referred to as SPRA Screening Guidance) to develop a recommendation based on its review of the SPRAs submitted by licensees in response to the 50.54(f) letter.

During an internal self-assessment review, the staff recently uncovered an error in the spreadsheet used to implement the SPRA Screening Guidance for evaluating the Peach Bottom SPRA submittal. The correction of the error resulted in changes to certain numerical values documented in the staff evaluation letter. The staff has confirmed that the changes to the numerical values do not impact or change the NRC decision documented by the previously referenced staff evaluation dated June 10, 2019.

Enclosure 2 to the staff evaluation letter dated June 12, 2019 (page 2 of Enclosure 2) contains a sentence that states the following:

The target RRWs [risk reduction worths] based on the mean and 95th percentile SCDF [seismic core damage frequency] and SLERF [seismic large early release frequency] were also calculated by the NRC staff and ranged between 1.63 and 1.96 for both units.

This sentence should have said (changes in **bold**):

The target RRWs based on the mean and 95th percentile SCDF and SLERF were also calculated by the NRC staff and ranged between **1.04** and **1.60** for both units.

In addition, the correction of the spreadsheet error impacts certain values presented in Tables 1 and 2 of Enclosure 2 to the staff's evaluation letter dated June 10, 2019. The following corrected versions of the impacted portions of Tables 1 and 2 are provided. The numbers that have changed are shown in **bold**.

Table 1. Importance Analysis Results of Top Contributors to Unit 2 and 3 SCDF

Fragility Group/Event	Description	Failure Mode	Unit 2		Unit 3	
			RRW	MCR (/rx-yr)	RRW	MCR (/rx-yr)
<i>SSC Fragility Groups – Seismically Failed</i>						
OSP	Offsite Power	Functional	52.632	2.63E-05	52.632	2.63E-05
S-DCBT1-	DC Batteries 2(A-D)D01, 3(A-D)D01	Anchorage	1.136	3.22E-06	1.135	3.19E-06
S-CNWG2-	Conowingo Hydroelectric Plant (OSP)	Functional	1.046	1.18E-06	1.056	1.41E-06
S-CEP1-	Panel 20C003, 20C004C, 30c003, 30C004C, 00C29(A-D)	Anchorage	1.040	1.02E-06	1.039	1.01E-06
S-CC359A-	Correlated Relay Chatter Group 359A (52B-TD5 relays) (All EDGs - Unrecoverable)	Functional	1.011	2.87E-07	1.012	3.06E-07
S-DCBS4-	DC Panel 20D24, 30D21	Anchorage	NA	NA	1.010	2.71E-07
S-DGPA1	D/G Room Supply Temp Control Panel 0(A-D)C479	Functional	1.007	1.82E-07	1.007	1.95E-07

Table 2. Importance Analysis Results of Top Contributors to Unit 2 and 3 SLERF

Fragility Group/Event	Description	Failure Mode	Unit 2		Unit 3	
			RRW	MLR (/rx-yr)	RRW	MLR (/rx-yr)
<i>SSC Fragility Groups – Seismically Failed</i>						
OSP	Offsite Power	Functional	10.204	6.62E-06	10.417	6.64E-06
SCRAM	RPV Internals (Scram)	Anchorage	<b>1.266</b>	<b>1.54E-06</b>	1.253	1.48E-06
S-DCBT1-	DC Batteries 2(A-D)D01, 3(A-D)D01	Anchorage	1.144	9.25E-07	1.114	7.49E-07
S-CNWG2-	Conowingo Hydroelectric Plant (OSP)	Functional	1.054	3.75E-07	1.052	<b>3.61E-07</b>
BOC	Break Outside Containment	Anchorage	1.040	2.84E-07	1.039	<b>2.75E-07</b>
SML	Seismic Induced Medium LOCA	Anchorage	1.032	2.29E-07	1.031	<b>2.21E-07</b>
S-CEPA1-	Panel 20C003, 20C004C, 30c003, 30C004C, 00C29(A-D)	Anchorage	1.027	1.95E-07	1.055	<b>3.84E-07</b>
S-DCBS4	DC Panel 20D24, 30D21	Anchorage	NA	NA	1.026	<b>1.84E-07</b>
S-PCI2	Primary Containment Isolation (Inboard and Outboard MSIVs)	Functional	<b>1.025</b>	<b>1.80E-07</b>	1.024	<b>1.74E-07</b>
S-CEPA7-	Panel 20C32 (U2 Engineering Sub Systems I Relay Cabinet)	Functional	1.014	1.04E-07	NA	NA
S-CNCT1-	Condensate Storage Tank 20T010, 30E010	Anchorage	1.014	1.01E-07	1.015	<b>1.09E-07</b>
S-DCBS10	250 VDC Bus 30D11	Anchorage	NA	NA	1.014	<b>1.01E-07</b>
S-SGTK1-	SGIG Nitrogen Tank	Anchorage	1.012	8.51E-08	1.011	<b>7.85E-08</b>
S-CEPA6-	Panel 20C32 (U2 HPCI Relay Panel)	Functional	1.012	8.44E-08	NA	NA
S-CC190A-	Correlated Relay Chatter Group 190A (52B-151N relays)(EDGs A and D - Unrecoverable)	Functional	1.009	6.74E-08	<b>1.008</b>	<b>6.03E-08</b>
S-CEPA8-	Panel 20C33 (U2 Engineering Sub Systems II Relay Cabinet)	Functional	1.008	5.60E-08	NA	NA
S-CC138-	Relay Chatter Group 138 (150G relay) (4KV Bus 20A15 - Recoverable)	Functional	1.007	5.29E-08	NA	NA
S-DCBS6-	DC Panel 2(A-D)D17, 3AD17, 3CD17, 3DD17	Functional	1.006	4.55E-08	NA	NA

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\*concurrence via email

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