



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

February 14, 2020

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

SUBJECT: BRAIDWOOD STATION, UNITS 1 AND 2; BYRON STATION, UNIT NOS. 1 AND 2; CLINTON POWER STATION, UNIT NO. 1; DRESDEN NUCLEAR POWER STATION, UNITS 1, 2, AND 3; LASALLE COUNTY STATION, UNITS 1 AND 2; LIMERICK GENERATING STATION, UNITS 1 AND 2; PEACH BOTTOM ATOMIC POWER STATION, UNITS 1, 2, AND 3; AND QUAD CITIES NUCLEAR POWER STATION, UNITS 1 AND 2 — ISSUANCE OF AMENDMENTS REVISING THE EMERGENCY ACTION LEVELS (EPID L-2019-LLA-0038)

Dear Mr. Hanson:

The U.S. Nuclear Regulatory Commission (NRC) has issued the following enclosed amendments in response to the Exelon Generation Company, LLC application dated March 1, 2019 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML19063A685):

1. Amendment No. 205 to Renewed Facility Operating License No. NPF-72 and Amendment No. 205 to Renewed Facility Operating License No. NPF-77 for Braidwood Station, Units 1 and 2, respectively;
2. Amendment No. 211 to Renewed Facility Operating License No. NPF-37 and Amendment No. 211 to Renewed Facility Operating License No. NPF-66 for Byron Station, Unit Nos. 1 and 2, respectively;
3. Amendment No. 228 to Facility Operating License No. NPF-62 for Clinton Power Station, Unit No. 1;
4. Amendment No. 47 to Facility Operating License No. DPR-2, Amendment No. 265 to Renewed Facility Operating License No. DPR-19, and Amendment No. 258 to Renewed Facility Operating License No. DPR-25 for Dresden Nuclear Power Station, Units 1, 2, and 3, respectively;
5. Amendment No. 241 to Renewed Facility Operating License No. NPF-11 and Amendment No. 227 to Renewed Facility Operating License No. NPF-18 for LaSalle County Station, Units 1 and 2, respectively;
6. Amendment No. 239 to Renewed Facility Operating License No. NPF-39 and Amendment No. 202 to Renewed Facility Operating License No. NPF-85 for Limerick Generating Station, Units 1 and 2, respectively;
7. Amendment No. 15 to Facility Operating License No. DPR-12, Amendment No. 331 to Renewed Facility Operating License No. DPR-44, and Amendment No. 334 to Renewed

- Facility Operating License No. DPR-56 for the Peach Bottom Atomic Power Station, Units 1, 2, and 3, respectively; and
8. Amendment No. 278 to Renewed Facility Operating License No. DPR-29 and Amendment No. 273 to Renewed Facility Operating License No. DPR-30 for the Quad Cities Nuclear Power Station, Units 1 and 2, respectively;

The amendments revise the emergency action level schemes for each site. A copy of the NRC staff's Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,

/RA/

Blake A. Purnell, Project Manager
Plant Licensing Branch III
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. STN 50-456, STN 50-457, 72-73,
STN 50-454, STN 50-455, 72-68,
50-461, 72-1046, 50-010, 50-237,
50-249, 72-37, 50-373, 50-374,
72-70, 50-352, 50-353, 72-65,
50-171, 50-277, 50-278, 72-29,
50-254, 50-265, and 72-53

Enclosures:

1. Amendment No. 205 to NPF-72
2. Amendment No. 205 to NPF-77
3. Amendment No. 211 to NPF-37
4. Amendment No. 211 to NPF-66
5. Amendment No. 228 to NPF-62
6. Amendment No. 47 to DPR-2
7. Amendment No. 265 to DPR-19
8. Amendment No. 258 to DPR-25
9. Amendment No. 241 to NPF-11
10. Amendment No. 227 to NPF-18
11. Amendment No. 239 to NPF-39
12. Amendment No. 202 to NPF-85
13. Amendment No. 15 to DPR-12
14. Amendment No. 331 to DPR-44
15. Amendment No. 334 to DPR-56
16. Amendment No. 278 to DPR-29
17. Amendment No. 273 to DPR-30
18. Safety Evaluation

cc: Listserv



UNITED STATES
NUCLEAR REGULATORY COMMISSION
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EXELON GENERATION COMPANY, LLC

DOCKET NO. STN 50-456

BRAIDWOOD STATION, UNIT 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 205
Renewed License No. NPF-72

1. The U.S. Nuclear Regulatory Commission (NRC or Commission) has found that:
 - A. The application for amendment by Exelon Generation Company, LLC (Exelon) dated March 1, 2019, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, Renewed Facility Operating License No. NPF-72 is hereby amended by revision to the emergency plan as set forth in Exelon's application dated March 1, 2019, and evaluated in the NRC staff's safety evaluation for this amendment.

3. This license amendment is effective as of the date of its issuance and shall be implemented on or before December 31, 2020.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/ Mirela Gavrilas for

Ho K. Nieh, Director
Office of Nuclear Reactor Regulation

Date of Issuance: February 14, 2020



UNITED STATES
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EXELON GENERATION COMPANY, LLC

DOCKET NO. STN 50-457

BRAIDWOOD STATION, UNIT 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 205
Renewed License No. NPF-77

1. The U.S. Nuclear Regulatory Commission (NRC or Commission) has found that:
 - A. The application for amendment by Exelon Generation Company, LLC (Exelon) dated March 1, 2019, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, Renewed Facility Operating License No. NPF-77 is hereby amended by revision to the emergency plan as set forth in Exelon's application dated March 1, 2019, and evaluated in the NRC staff's safety evaluation for this amendment.

3. This license amendment is effective as of the date of its issuance and shall be implemented on or before December 31, 2020.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/ Mirela Gavrilas for

Ho K. Nieh, Director
Office of Nuclear Reactor Regulation

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EXELON GENERATION COMPANY, LLC

DOCKET NO. STN 50-454

BYRON STATION, UNIT NO. 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 211
Renewed License No. NPF-37

1. The U.S. Nuclear Regulatory Commission (NRC or Commission) has found that:
 - A. The application for amendment by Exelon Generation Company, LLC (Exelon) dated March 1, 2019, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, Renewed Facility Operating License No. NPF-37 is hereby amended by revision to the emergency plan as set forth in Exelon's application dated March 1, 2019, and evaluated in the NRC staff's safety evaluation for this amendment.

3. This license amendment is effective as of the date of its issuance and shall be implemented on or before December 31, 2020.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/ Mirela Gavrilas for

Ho K. Nieh, Director
Office of Nuclear Reactor Regulation

Date of Issuance: February 14, 2020



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EXELON GENERATION COMPANY, LLC

DOCKET NO. STN 50-455

BYRON STATION, UNIT NO. 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 211
Renewed License No. NPF-66

1. The U.S. Nuclear Regulatory Commission (NRC or Commission) has found that:
 - A. The application for amendment by Exelon Generation Company, LLC (Exelon) dated March 1, 2019, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, Renewed Facility Operating License No. NPF-66 is hereby amended by revision to the emergency plan as set forth in Exelon's application dated March 1, 2019, and evaluated in the NRC staff's safety evaluation for this amendment.

3. This license amendment is effective as of the date of its issuance and shall be implemented on or before December 31, 2020.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/ Mirela Gavrilas for

Ho K. Nieh, Director
Office of Nuclear Reactor Regulation

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EXELON GENERATION COMPANY, LLC

DOCKET NO. 50-461

CLINTON POWER STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 228
License No. NPF-62

1. The U.S. Nuclear Regulatory Commission (NRC or Commission) has found that:
 - A. The application for amendment by Exelon Generation Company, LLC (Exelon) dated March 1, 2019, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, Facility Operating License No. NPF-62 is hereby amended by revision to the emergency plan as set forth in Exelon's application dated March 1, 2019, and evaluated in the NRC staff's safety evaluation for this amendment.

3. This license amendment is effective as of the date of its issuance and shall be implemented on or before December 31, 2020.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/ Mirela Gavrilas for

Ho K. Nieh, Director
Office of Nuclear Reactor Regulation

Date of Issuance: February 14, 2020



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EXELON GENERATION COMPANY, LLC

DOCKET NO. 50-010

DRESDEN NUCLEAR POWER STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 47
License No. DPR-2

1. The U.S. Nuclear Regulatory Commission (NRC or Commission) has found that:
 - A. The application for amendment by Exelon Generation Company, LLC (Exelon) dated March 1, 2019, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, Facility Operating License No. DPR-2 is hereby amended by revision to the emergency plan as set forth in Exelon's application dated March 1, 2019, and evaluated in the NRC staff's safety evaluation for this amendment.

3. This license amendment is effective as of the date of its issuance and shall be implemented on or before December 31, 2020.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/ Mirela Gavrilas for

Ho K. Nieh, Director
Office of Nuclear Reactor Regulation

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EXELON GENERATION COMPANY, LLC

DOCKET NO. 50-237

DRESDEN NUCLEAR POWER STATION, UNIT 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 265
Renewed License No. DPR-19

1. The U.S. Nuclear Regulatory Commission (NRC or Commission) has found that:
 - A. The application for amendment by Exelon Generation Company, LLC (Exelon) dated March 1, 2019, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, Renewed Facility Operating License No. DPR-19 is hereby amended by revision to the emergency plan as set forth in Exelon's application dated March 1, 2019, and evaluated in the NRC staff's safety evaluation for this amendment.

3. This license amendment is effective as of the date of its issuance and shall be implemented on or before December 31, 2020.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/ Mirela Gavrilas for

Ho K. Nieh, Director
Office of Nuclear Reactor Regulation

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EXELON GENERATION COMPANY, LLC

DOCKET NO. 50-249

DRESDEN NUCLEAR POWER STATION, UNIT 3

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 258
Renewed License No. DPR-25

1. The U.S. Nuclear Regulatory Commission (NRC or Commission) has found that:
 - A. The application for amendment by Exelon Generation Company, LLC (Exelon) dated March 1, 2019, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, Renewed Facility Operating License No. DPR-25 is hereby amended by revision to the emergency plan as set forth in Exelon's application dated March 1, 2019, and evaluated in the NRC staff's safety evaluation for this amendment.

3. This license amendment is effective as of the date of its issuance and shall be implemented on or before December 31, 2020.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/ Mirela Gavrilas for

Ho K. Nieh, Director
Office of Nuclear Reactor Regulation

Date of Issuance: February 14, 2020



UNITED STATES
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EXELON GENERATION COMPANY, LLC

DOCKET NO. 50-373

LASALLE COUNTY STATION, UNIT 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 241
Renewed License No. NPF-11

1. The U.S. Nuclear Regulatory Commission (NRC or Commission) has found that:
 - A. The application for amendment by Exelon Generation Company, LLC (Exelon) dated March 1, 2019, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, Renewed Facility Operating License No. NPF-11 is hereby amended by revision to the emergency plan as set forth in Exelon's application dated March 1, 2019, and evaluated in the NRC staff's safety evaluation for this amendment.

3. This license amendment is effective as of the date of its issuance and shall be implemented on or before December 31, 2020.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/ Mirela Gavrilas for

Ho K. Nieh, Director
Office of Nuclear Reactor Regulation

Date of Issuance: February 14, 2020



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EXELON GENERATION COMPANY, LLC

DOCKET NO. 50-374

LASALLE COUNTY STATION, UNIT 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 227
Renewed License No. NPF-18

1. The U.S. Nuclear Regulatory Commission (NRC or Commission) has found that:
 - A. The application for amendment by Exelon Generation Company, LLC (Exelon) dated March 1, 2019, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, Renewed Facility Operating License No. NPF-18 is hereby amended by revision to the emergency plan as set forth in Exelon's application dated March 1, 2019, and evaluated in the NRC staff's safety evaluation for this amendment.

3. This license amendment is effective as of the date of its issuance and shall be implemented on or before December 31, 2020.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/ Mirela Gavrilas for

Ho K. Nieh, Director
Office of Nuclear Reactor Regulation

Date of Issuance: February 14, 2020



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EXELON GENERATION COMPANY, LLC

DOCKET NO. 50-352

LIMERICK GENERATING STATION, UNIT 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 239
Renewed License No. NPF-39

1. The U.S. Nuclear Regulatory Commission (NRC or Commission) has found that:
 - A. The application for amendment by Exelon Generation Company, LLC (Exelon) dated March 1, 2019, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, Renewed Facility Operating License No. NPF-39 is hereby amended by revision to the emergency plan as set forth in Exelon's application dated March 1, 2019, and evaluated in the NRC staff's safety evaluation for this amendment.

3. This license amendment is effective as of the date of its issuance and shall be implemented on or before December 31, 2020.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/ Mirela Gavrilas for

Ho K. Nieh, Director
Office of Nuclear Reactor Regulation

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EXELON GENERATION COMPANY, LLC

DOCKET NO. 50-353

LIMERICK GENERATING STATION, UNIT 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 202
Renewed License No. NPF-85

1. The U.S. Nuclear Regulatory Commission (NRC or Commission) has found that:
 - A. The application for amendment by Exelon Generation Company, LLC (Exelon) dated March 1, 2019, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, Renewed Facility Operating License No. NPF-85 is hereby amended by revision to the emergency plan as set forth in Exelon's application dated March 1, 2019, and evaluated in the NRC staff's safety evaluation for this amendment.

3. This license amendment is effective as of the date of its issuance and shall be implemented on or before December 31, 2020.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/ Mirela Gavrilas for

Ho K. Nieh, Director
Office of Nuclear Reactor Regulation

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EXELON GENERATION COMPANY, LLC

DOCKET NO. 50-171

PEACH BOTTOM ATOMIC POWER STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 15
License No. DPR-12

1. The U.S. Nuclear Regulatory Commission (NRC or Commission) has found that:
 - A. The application for amendment by Exelon Generation Company, LLC (Exelon) dated March 1, 2019, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, Facility Operating License No. DPR-12 is hereby amended by revision to the emergency plan as set forth in Exelon's application dated March 1, 2019, and evaluated in the NRC staff's safety evaluation for this amendment.

3. This license amendment is effective as of the date of its issuance and shall be implemented on or before December 31, 2020.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/ Mirela Gavrilas for

Ho K. Nieh, Director
Office of Nuclear Reactor Regulation

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EXELON GENERATION COMPANY, LLC

PSEG NUCLEAR LLC

DOCKET NO. 50-277

PEACH BOTTOM ATOMIC POWER STATION, UNIT 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 331
Renewed License No. DPR-44

1. The U.S. Nuclear Regulatory Commission (NRC or Commission) has found that:
 - A. The application for amendment by Exelon Generation Company, LLC (Exelon) dated March 1, 2019, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, Renewed Facility Operating License No. DPR-44 is hereby amended by revision to the emergency plan as set forth in Exelon's application dated March 1, 2019, and evaluated in the NRC staff's safety evaluation for this amendment.

3. This license amendment is effective as of the date of its issuance and shall be implemented on or before December 31, 2020.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/ Mirela Gavrilas for

Ho K. Nieh, Director
Office of Nuclear Reactor Regulation

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EXELON GENERATION COMPANY, LLC

PSEG NUCLEAR LLC

DOCKET NO. 50-278

PEACH BOTTOM ATOMIC POWER STATION, UNIT 3

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 334
Renewed License No. DPR-56

1. The U.S. Nuclear Regulatory Commission (NRC or Commission) has found that:
 - A. The application for amendment by Exelon Generation Company, LLC (Exelon) dated March 1, 2019, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, Renewed Facility Operating License No. DPR-56 is hereby amended by revision to the emergency plan as set forth in Exelon's application dated March 1, 2019, and evaluated in the NRC staff's safety evaluation for this amendment.

3. This license amendment is effective as of the date of its issuance and shall be implemented on or before December 31, 2020.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/ Mirela Gavrilas for

Ho K. Nieh, Director
Office of Nuclear Reactor Regulation

Date of Issuance: February 14, 2020



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

EXELON GENERATION COMPANY, LLC

AND

MIDAMERICAN ENERGY COMPANY

DOCKET NO. 50-254

QUAD CITIES NUCLEAR POWER STATION, UNIT 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 278
Renewed License No. DPR-29

1. The U.S. Nuclear Regulatory Commission (NRC or Commission) has found that:
 - A. The application for amendment by Exelon Generation Company, LLC (Exelon) dated March 1, 2019, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, Renewed Facility Operating License No. DPR-29 is hereby amended by revision to the emergency plan as set forth in Exelon's application dated March 1, 2019, and evaluated in the NRC staff's safety evaluation for this amendment.

3. This license amendment is effective as of the date of its issuance and shall be implemented on or before December 31, 2020.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/ Mirela Gavrilas for

Ho K. Nieh, Director
Office of Nuclear Reactor Regulation

Date of Issuance: February 14, 2020



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

EXELON GENERATION COMPANY, LLC

AND

MIDAMERICAN ENERGY COMPANY

DOCKET NO. 50-265

QUAD CITIES NUCLEAR POWER STATION, UNIT 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 273
Renewed License No. DPR-30

1. The U.S. Nuclear Regulatory Commission (NRC or Commission) has found that:
 - A. The application for amendment by Exelon Generation Company, LLC (Exelon) dated March 1, 2019, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, Renewed Facility Operating License No. DPR-30 is hereby amended by revision to the emergency plan as set forth in Exelon's application dated March 1, 2019, and evaluated in the NRC staff's safety evaluation for this amendment.

3. This license amendment is effective as of the date of its issuance and shall be implemented on or before December 31, 2020.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/ Mirela Gavrilas for

Ho K. Nieh, Director
Office of Nuclear Reactor Regulation

Date of Issuance: February 14, 2020



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO

AMENDMENT NO. 205 TO RENEWED FACILITY OPERATING LICENSE NO. NPF-72,

AMENDMENT NO. 205 TO RENEWED FACILITY OPERATING LICENSE NO. NPF-77,

AMENDMENT NO. 211 TO RENEWED FACILITY OPERATING LICENSE NO. NPF-37,

AMENDMENT NO. 211 TO RENEWED FACILITY OPERATING LICENSE NO. NPF-66,

AMENDMENT NO. 228 TO FACILITY OPERATING LICENSE NO. NPF-62,

AMENDMENT NO. 47 TO FACILITY OPERATING LICENSE NO. DPR-2,

AMENDMENT NO. 265 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-19,

AMENDMENT NO. 258 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-25,

AMENDMENT NO. 241 TO RENEWED FACILITY OPERATING LICENSE NO. NPF-11,

AMENDMENT NO. 227 TO RENEWED FACILITY OPERATING LICENSE NO. NPF-18,

AMENDMENT NO. 239 TO RENEWED FACILITY OPERATING LICENSE NO. NPF-39,

AMENDMENT NO. 202 TO RENEWED FACILITY OPERATING LICENSE NO. NPF-85,

AMENDMENT NO. 15 TO FACILITY OPERATING LICENSE NO. DPR-12,

AMENDMENT NO. 331 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-44,

AMENDMENT NO. 334 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-56,

AMENDMENT NO. 278 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-29,

AND AMENDMENT NO. 273 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-30.

EXELON GENERATION COMPANY, LLC

BRAIDWOOD STATION, UNITS 1 AND 2

BYRON STATION, UNIT NOS. 1 AND 2

CLINTON POWER STATION, UNIT NO. 1

DRESDEN NUCLEAR POWER STATION, UNITS 1, 2, AND 3

LASALLE COUNTY STATION, UNITS 1 AND 2

LIMERICK GENERATING STATION, UNITS 1 AND 2

PEACH BOTTOM ATOMIC POWER STATION, UNITS 1, 2, AND 3

QUAD CITIES NUCLEAR POWER STATION, UNITS 1 AND 2

DOCKET NOS. STN 50-456, STN 50-457, STN 50-454, STN 50-455, 50-461, 50-010, 50-237,

50-249, 50-373, 50-374, 50-352, 50-353, 50-171, 50-277, 50-278, 50-254, AND 50-265

1.0 INTRODUCTION

By application dated March 1, 2019 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML19063A685), Exelon Generation Company, LLC (Exelon) submitted a license amendment request for Braidwood Station (Braidwood), Units 1 and 2; Byron Station (Byron), Unit Nos. 1 and 2; Clinton Power Station (Clinton), Unit No. 1; Dresden Nuclear Power Station (Dresden), Units 1, 2, and 3; LaSalle County Station (LaSalle), Units 1 and 2; Limerick Generating Station (Limerick), Units 1 and 2; Peach Bottom Atomic Power Station (Peach Bottom), Units 1, 2, and 3; and Quad Cities Nuclear Power Station (Quad Cities), Units 1 and 2 (collectively, the sites). The amendments will revise the emergency plan for each site by changing certain emergency action levels (EALs).

2.0 REGULATORY EVALUATION

2.1 Background

The current EAL schemes for Exelon's sites were approved by the U.S. Nuclear Regulatory Commission (NRC or Commission) by amendments dated July 28, 2015 (ADAMS Accession No. ML15141A058). The current EAL schemes are all based on the Nuclear Energy Institute's (NEI's) guidance in NEI 99-01, Revision 6, "Development of Emergency Action Levels for Non-Passive Reactors," which was endorsed by the NRC by letter dated March 28, 2013 (ADAMS Package Accession No. ML13091A209). However, these EAL schemes also have some fleet-wide and plant-specific differences from the NEI guidance.

The EAL schemes are specific to each site and encompass the operating reactors, permanently shut down reactors, and onsite independent spent fuel storage installations located at the sites. Clinton, Dresden Units 2 and 3, LaSalle Units 1 and 2, Limerick Units 1 and 2, Peach Bottom Units 2 and 3, and Quad Cities Units 1 and 2 are all operating boiling-water reactors. Braidwood Units 1 and 2 and Byron Units 1 and 2 are operating pressurized-water reactors. Each site has an onsite independent spent fuel storage installation.

Dresden Unit 1 is a permanently shut down and defueled reactor co-located with Dresden Units 2 and 3. Spent fuel from Dresden Unit 1 is currently stored in the onsite independent spent fuel storage installation and in the Dresden Unit 3 spent fuel pool.

Peach Bottom Unit 1 is a permanently shut down and defueled reactor co-located with Peach Bottom Units 2 and 3. All spent fuel for Peach Bottom Unit 1 has been removed from the site.

Exelon uses the following convention for identifying its EALs: the first letter signifies the recognition category; the second letter signifies the emergency classification level; and the number is used to identify the EAL set within a recognition category.

- The EAL schemes are organized by recognition category in the following order:
 - R – Abnormal Radiation Levels/Radiological Effluent
 - C – Cold Shutdown/Refueling System Malfunction
 - E – Independent Spent Fuel Storage Installation
 - F – Fission Product Barrier
 - H – Hazards and Other Conditions Affecting Plant Safety
 - M – System Malfunction

- The emergency classification levels are:
 - U – Notification of Unusual Event
 - A – Alert
 - S – Site Area Emergency
 - G – General Emergency

An EAL set refers to EALs, within a recognition category or subcategory, that include an escalation path for one or more classification levels. Not all recognition categories have an EAL set.

2.2 Description of Proposed Changes

For each site, Exelon proposed changes to specific conditions listed in the fission product barrier matrix (i.e., EAL Set FA1/FS1/FG1) and changes to EALs MG1, MS1, MG2, MA5, CA1, CU1, and CA2. Exelon proposed to eliminate EAL HG1 for Braidwood, Byron, Clinton, Dresden, LaSalle, and Quad Cities. Exelon also proposed to revise Dresden EAL MU1. Exelon stated that most of the proposed EAL changes are based on emergency plan frequently asked questions (EPFAQs),¹ which were developed after NEI 99-01, Revision 6, was endorsed by the NRC. Details regarding the specific changes are described in the application and discussed in Section 3.0 of this safety evaluation.

2.3 Regulatory Requirements

Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.47, “Emergency plans,” sets forth emergency plan requirements for nuclear power reactors. Section 50.47(b) establishes the planning standards that the onsite and offsite emergency response plans must meet for NRC staff to make a finding that there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. Paragraph 50.47(b)(4) of 10 CFR requires that onsite and offsite emergency response plans meet the following:

A standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility

¹ <https://www.nrc.gov/about-nrc/emerg-preparedness/faq/faq-contactus.html>

licensee, and State and local response plans call for reliance on information provided by facility licensees for determinations of minimum initial offsite response measures.

The use of a standard emergency classification and action level scheme ensures that implementation methods are relatively consistent throughout the industry for a given reactor and containment design, but site-specific design considerations and preferences are permitted. Section IV.B.1 of Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities," to 10 CFR Part 50, states, in part:

The means to be used for determining the magnitude of, and for continually assessing the impact of, the release of radioactive materials shall be described, including emergency action levels that are to be used as criteria for determining the need for notification and participation of local and State agencies, the Commission, and other Federal agencies, and the emergency action levels that are to be used for determining when and what type of protective measures should be considered within and outside the plant boundary to protect health and safety. The emergency action levels shall be based on in-plant conditions and instrumentation in addition to onsite and offsite monitoring. By June 20, 2012, for nuclear power reactor licensees, these action levels must include hostile action that may adversely affect the nuclear power plant.

In accordance with 10 CFR 50.54(q)(2), licensees shall follow and maintain the effectiveness of an emergency plan that meets the requirements in 10 CFR Part 50, Appendix E, and the planning standards of 10 CFR 50.47(b). In accordance with 10 CFR 50.54(q)(4), Exelon determined that prior NRC approval is needed to implement the proposed changes to the emergency plan.

2.4 Guidance

The EAL development guidance was initially established in Generic Letter 79-50,² dated October 10, 1979 (ADAMS Accession No. ML031320278). This guidance was subsequently revised in the joint NRC and Federal Emergency Management Agency (FEMA) document NUREG-0654/FEMA-REP-1, Revision 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," dated November 1980 (ADAMS Accession No. ML040420012), which was endorsed by NRC Regulatory Guide 1.101, Revision 2, "Emergency Planning and Preparedness for Nuclear Power Reactors," October 1981 (ADAMS Accession No. ML090440294),³ as an approach acceptable to the NRC for the development of an EAL scheme.

As experience was gained with the implementation and use of EAL schemes, the industry issued revised EAL scheme development guidance to reflect lessons learned. NEI 99-01, Revision 6, is the most recent industry guidance endorsed by the NRC. Although the EAL development guidance contained in NEI 99-01, Revision 6, is generic and may not be entirely applicable for some non-passive, large light-water reactor designs, it bounds the most typical accident and event scenarios for which emergency response is necessary, in a format that allows for industry standardization and consistent regulatory oversight. Licensees may choose

² Untitled letter transmitting basis for emergency action levels.

³ Also see Regulatory Guide 1.101, Revision 3, dated August 1992, and Revision 4, dated July 2003 (ADAMS Accession Nos. ML003740302 and ML032020276, respectively).

to develop plant-specific EAL schemes using NEI 99-01, Revision 6, with appropriate plant-specific alterations.

NRC Regulatory Issue Summary (RIS) 2003-18, "Use of NEI 99-01, 'Methodology for Development of Emergency Action Levels,' Revision 4, Dated January 2003," dated October 8, 2003 (ADAMS Accession No. ML032580518), with supplements dated July 13, 2004, and December 12, 2005 (ADAMS Accession Nos. ML041550395 and ML051450482, respectively), also provided guidance for developing or changing a standard EAL scheme. In summary, the NRC staff considers NEI 99-01, Revision 6, to be an acceptable method to develop site-specific EALs that meet the requirements of Section IV.B of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), with the understanding that licensees may develop EALs that differ from the guidance document.

3.0 TECHNICAL EVALUATION

3.1 Changes to the Fission Product Barrier Matrix (EAL Set FA1/FS1/FG1)

The three fission product barriers are fuel cladding, the reactor coolant system, and primary containment. The intent of the fission product barrier matrix (EAL Set FA1/FS1/FG1) is to ensure that an appropriate emergency classification level is declared upon a loss or potential loss of one or more fission product barriers during power operations, startup, hot standby or hot shutdown, as applicable. This matrix uses plant condition-based thresholds to reflect the loss or potential loss of a fission product barrier. The progression from an alert to a general emergency within this EAL set is as follows:

- EAL FA1 requires an alert declaration for any loss or potential loss of either the fuel cladding or reactor coolant system barriers.
- EAL FS1 requires a site area emergency declaration for the loss or potential loss of any two fission product barriers.
- EAL FG1 requires a general emergency declaration for the loss of any two fission product barriers and the loss or potential loss of the third fission product barrier.

Changes Based on EPFAQ 2015-004

Exelon proposed changes to the fission produce barrier matrix for Clinton, Dresden, LaSalle, Limerick, Peach Bottom, and Quad Cities based on EPFAQ 2015-004 (ADAMS Accession No. ML16012A178). The fission product barrier matrix for these sites identifies "Plant conditions indicate Primary Containment flooding is required" as a threshold for the loss of the fuel cladding barrier (condition FC2) and as a threshold for the potential loss of the containment barrier (condition CT2). The emergency operating procedures and severe accident guidelines (SAGs) (severe accident mitigation procedures (SAMPs) at Limerick and Peach Bottom) specify the conditions that require primary containment flooding. When primary containment flooding is required, the emergency operating procedures are exited and the SAGs or SAMPs, as applicable, are entered.

Exelon proposed to revise the loss threshold for condition FC2 and the potential loss threshold for CT2 to state that "SAG entry is required" or "SAMP entry is required," as applicable. The NRC staff determined this change is consistent with the guidance provided in NEI 99-01,

Revision 6, because SAG or SAMP entry indicates adequate core cooling cannot be restored and that core damage is possible. Therefore, the NRC staff finds this change acceptable.

Changes Based on EPFAQ 2015-003

Exelon proposed changes to the fission product barrier matrix for Clinton, Dresden, LaSalle, Limerick, Peach Bottom, and Quad Cities based on EPFAQ 2015-003 (ADAMS Accession No. ML16012A178). A required emergency depressurization of the reactor pressure vessel is a loss threshold for the reactor coolant system under condition RC4. The basis for this loss threshold currently states that if an emergency reactor pressure vessel depressurization is performed, the plant operators are directed to open safety relief valves and keep them open. Exelon proposed to remove from the EAL basis the statement that the valves will be kept open, since the valves may be reclosed following depressurization. The NRC staff determined this change is acceptable because it does not modify the thresholds for condition RC4 or impact the way condition RC4 would be assessed.

Other Changes

Currently, the basis for condition RC4 for the Clinton fission product barrier matrix includes a statement that large high-energy lines that rupture outside primary containment can discharge significant amounts of inventory. However, the large high-energy lines at Clinton are located within primary containment. Therefore, Exelon proposed to correct the basis for condition RC4 in the Clinton EAL scheme to state that large high-energy lines that rupture can discharge significant amounts of inventory. The NRC staff determined this change is acceptable because it does not modify the thresholds for condition RC4 or impact the way condition RC4 would be assessed.

At Braidwood and Byron, the “Red Path” for the heat sink critical safety function refers to a condition where the ultimate heat sink function is under extreme challenge. Currently, if a Red Path condition exists for the heat sink critical safety function the fission product barrier matrix classifies this as a potential loss for both the reactor coolant system (condition RC2) and fuel cladding barriers (condition FC2). Exelon proposed to modify the potential loss thresholds of conditions RC2 and FC2 for Braidwood and Byron to state: “Red Path conditions exist and heat sink required.” The proposed changes would ensure that a classification will only be made when heat removal from the steam generators is required and not for conditions where the heat sink is irrelevant. Therefore, the NRC staff determined that this change is acceptable.

3.2 Elimination of EAL HG1

Exelon proposed to eliminate EAL HG1 for Braidwood, Byron, Clinton, Dresden, LaSalle, and Quad Cities based on EPFAQ 2015-013 (ADAMS Accession No. ML16166A366). EAL HG1 provides criteria for the declaration of a general emergency that addresses a hostile action that results in the loss of physical control of the facility. Such an action can reasonably be expected to exceed the offsite exposure levels in the U.S. Environmental Protection Agency (EPA) early phase protective action guides (PAGs) for more than the immediate site area. EAL HG7 provides for the declaration of a general emergency if other conditions exist which in the judgement of the emergency director warrant such a declaration. EAL HG7 specifically addresses the same condition as HG1. The NRC staff verified that any event that could result in a radiological release exceeding the limits in the EPA early phase PAGs would also be bounded by EALs RG1 or RG2. Therefore, the NRC staff determined that the elimination of

EAL HG1 for these sites is acceptable because a hostile action that results in the loss of physical control of the facility is adequately addressed by EALs HG7, RG1, and RG2.

3.3 Changes to EALs MG1, MS1, MG2, and CA1

Exelon proposed changes to EALs MG1, MS1, MG2, and CA1 for each site based on EPFAQ 2015-015 (ADAMS Accession No. ML16166A191). Each of these EALs addresses the loss of alternating-current (ac) power sources. EAL CA1 is applicable during cold shutdown, refueling, or defueled conditions. EALs MG1, MS1, and MG2 are applicable during power operations, startup, hot standby, or hot shutdown.

- EAL CA1 addresses a significant degradation of offsite and onsite ac power sources to emergency buses such that any additional single failure would result in a loss of all ac power to safety systems.
- EAL MS1 addresses a loss of all ac power source to emergency buses for 15 minutes or longer. Such a loss would compromise the performance of all safety systems requiring electric power, including emergency core cooling, containment heat removal and pressure control, spent fuel heat removal, and the ultimate heat sink.
- EAL MG1 addresses a prolonged loss of all ac power sources to emergency buses.
- EAL MG2 addresses the loss of all ac and vital direct-current power sources for 15 minutes or longer.

Each of these EALs specifies three or four conditions that must all be met to reach the threshold for the associated emergency declaration. However, the following two conditions are the same for all four EALs:

1. Loss of all offsite ac power sources to unit emergency buses.
2. Failure of specified emergency diesel generators to supply power to the unit emergency buses.

Exelon proposed to modify EALs MG1, MS1, MG2, and CA1 for each site by removing the second condition and revising the first condition to specify the loss of all offsite and onsite ac power sources to unit emergency buses as a threshold. The additional conditions which distinguish the different EALs are not affected by the proposed change. The NRC staff determined that the revisions to EALs MG1, MS1, MG2, and CA1 are acceptable because it removes the potential for an unnecessary emergency declaration when sources of ac power other than the emergency diesel generators are effective in powering an emergency bus.

3.4 Changes to EALs MA5 and CA2

Exelon proposed changes to EALs MA5 and CA2 for each site based on EPFAQ 2016-002 (ADAMS Accession No. ML17195A299). EAL CA2 is applicable during cold shutdown, refueling, or defueled conditions. EAL MA5 is applicable during power operations, startup, hot standby, or hot shutdown.

EALs MA5 and CA2 ensure that an alert is declared when hazardous events lead to potential damage to safety systems. Hazardous events include earthquake, flooding, high winds, tornado

strike, explosion, fire, or other event with similar hazard characteristics as determined by the shift manager. These EALs are primarily intended to ensure that the site emergency response organization is activated to support the control room in understanding the event impacts and restoring affected safety system equipment to service. Indications of hazard induced damage to components containing radioactive materials are bounded by other EALs.

Exelon EALs MA5 and CA2 are based on EALs SA9 and CA6, respectively, in NEI 99-01, Revision 6. These EALs are intended to ensure that an alert is declared only when an actual or potential substantial degradation of the level of safety of the plant has occurred as a result of a hazardous event. However, there may be cases where a hazardous event only causes damage to a single safety system component or train. The developer notes in NEI 99-01, Revision 6, for these EALs state that safety systems are comprised of two or more separate and redundant trains of equipment in accordance with site-specific design criteria. However, Exelon's definition of safety systems for these EALs does not specifically exclude single-train systems. Exelon proposed to revise EALs MA5 and CA2 by adding a note stating that these EALs are only applicable to safety systems having two or more trains. The NRC staff determined this change is acceptable because it is consistent with the description of safety systems in the developer notes in NEI 99-01, Revision 6, for these EALs.

NEI 99-01, Revision 6, states that an alert applies when events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety. In addition, the guidance states that any releases are expected to be limited to small fractions of the exposure levels in the EPA early phase PAGs. Thus, an alert should not be declared if the damage from the hazardous event is limited to a safety system component or a safety system train that was inoperable or out of service prior to the event occurring.

Exelon's revised EALs MA5 and CA2 would require the declaration of an alert for a hazardous event that results in indications of degraded performance in one train of a multi-train safety system with either indications of degraded performance or visible damage to a second train of the safety system. The proposed basis for these EALs states that these indications should be significant enough that the operability or reliability of the second safety system train is a concern. The NRC staff determined that the proposed changes to EALs MA5 and CA2 are acceptable because the revised EALs would ensure that an alert would be declared only when an actual or potential substantial degradation of the level of safety of the plant has occurred as a result of a hazardous event.

3.5 Additional Changes

In addition to the changes evaluated above, Exelon proposed several editorial changes to the EAL schemes including:

- clarifying that Dresden EALs CA1, CU1, MU1, MA1, MS1, MG1, and MG2 are referring to the "4 kilovolt" ac emergency buses,
- renumbering certain EAL thresholds for each site,
- emphasizing some words by making them bold and capitalized for Braidwood and Byron,
- changing "SAFETY SYSTEMS" to SAFETY SYSTEMs" for each site and
- changed spelling of certain words (e.g., "Off-site" changed to "offsite") for Clinton.

The NRC staff reviewed these additional changes and determined they were acceptable because they were editorial and did not change the intent or outcome of any EAL.

3.6 Evaluation of Impact on EAL Scheme

In addition to the evaluation of the individual changes, the NRC staff also evaluated the impact of the changes on each affected EAL set and the overall EAL scheme. Although the EALs must be site-specific, the staff reviewed the revised EALs for the following key characteristics of an effective EAL scheme to ensure consistency and regulatory stability:

- Consistency, including standardization of intent, if not in actual wording (i.e., the EALs would lead to similar decisions under similar circumstances at different plants);
- Human factors engineering and user friendliness;
- Potential for emergency classification level upgrade only when there is an increasing threat to public health and safety;
- Ease of upgrading and downgrading the emergency classification level;
- Thoroughness in addressing issues regarding the completeness and accuracy of Appendix 1 to NUREG-0654 (i.e., the EALs are unambiguous and are based on site-specific indicators);
- Technical completeness for each classification level;
- Logical progression in classification for multiple events; and
- The use of objective and observable values.

For each EAL set affected by the proposed changes, the NRC staff verified that the numbering, sequencing, formatting, logical progression, and ease of upgrading and downgrading will continue to be consistent with the overall EAL scheme development guidance and address the site-specific implementation strategies provided. Therefore, the staff finds that the revised EAL schemes are consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4).

The NRC staff verified that the revised EAL schemes use objective and observable values, are worded in a manner that addresses human factors engineering and user friendliness concerns, address issues regarding completeness and accuracy of Appendix 1 to NUREG-0654, follow logical progressions for escalating events, and allow for event downgrading and upgrading based upon the potential risk to the public health and safety. In addition, the staff verified that the revised EAL schemes remain technically complete for each classification level and consistent with EAL schemes implemented at similarly designed plants. Therefore, the staff determined that the revised EAL schemes are consistent with the key characteristics of an effective EAL scheme and meet the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50.

Based on its review, the NRC staff finds that the revised EAL schemes are acceptable and provide reasonable assurance that Exelon can and will take adequate protective measures in the event of a radiological emergency. Specifically, the staff concludes that Exelon's proposed revisions to the EAL schemes for Braidwood, Byron, Clinton, Dresden, LaSalle, Limerick, Peach Bottom, and Quad Cities are acceptable for implementation.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Illinois and Pennsylvania State officials were notified of the proposed issuance of the amendments on November 26, 2019. The State officials had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendments relate to changes in recordkeeping, reporting, or administrative procedures or requirements. Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(10). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) there is reasonable assurance that such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: Raymond Hoffman, NSIR/DPR

Date of issuance: February 14, 2020

SUBJECT: BRAIDWOOD STATION, UNITS 1 AND 2; BYRON STATION, UNIT NOS. 1 AND 2; CLINTON POWER STATION, UNIT NO. 1; DRESDEN NUCLEAR POWER STATION, UNITS 1, 2, AND 3; LASALLE COUNTY STATION, UNITS 1 AND 2; LIMERICK GENERATING STATION, UNITS 1 AND 2; PEACH BOTTOM ATOMIC POWER STATION, UNITS 1, 2, AND 3; AND QUAD CITIES NUCLEAR POWER STATION, UNITS 1 AND 2 — ISSUANCE OF AMENDMENTS REVISING THE EMERGENCY ACTION LEVELS (EPID L-2019-LLA-0038) DATED FEBRUARY 14, 2020

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RidsNrrPMBraidwood Resource	RidsNrrDorl Resource
RidsNrrPMByron Resource	ZCruz, NMSS
RidsNrrPMClinton Resource	MNorris, NSIR
RidsNrrPMDresden Resource	RHoffman, NSIR

ADAMS Accession No.: ML19331A725

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NAME	BPurnell	SRohrer	JAnderson
DATE	01/08/2020	12/03/2019	11/25/2019
OFFICE	OGC NLO*	NRR/DORL/LPL3/BC	NRR/DORL/DD*
NAME	AReginald	NSalgado (SWall for)	GSuber
DATE	01/07/2020	01/10/2020	02/06/2020
OFFICE	NMSS/DUWP/RDB/BC*	NRR/D	DORL/LPL3/PM
NAME	BWatson	HNieh (MGavrilas for)	BPurnell
DATE	01/08/2020	02/13/2020	02/14/2020

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