



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

July 28, 2015

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: 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; OYSTER CREEK NUCLEAR GENERATING STATION; PEACH BOTTOM ATOMIC POWER STATION, UNITS 1, 2 AND 3; QUAD CITIES NUCLEAR POWER STATION, UNITS 1 AND 2; AND THREE MILE ISLAND NUCLEAR STATION, UNITS 1 AND 2 - ISSUANCE OF AMENDMENTS REGARDING EMERGENCY ACTION LEVEL SCHEMES (TAC NOS. MF4232-MF4251)**

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 May 30, 2014 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML14164A053), as supplemented by letters dated March 2 and June 5, 2015 (ADAMS Accession Nos. ML15071A122 and ML15159B025, respectively):

1. Amendment No. 184 to Facility Operating License No. NPF-72 and Amendment No. 184 to Facility Operating License No. NPF 77 for the Braidwood Station, Units 1 and 2, respectively;
2. Amendment No. 190 to Facility Operating License No. NPF-37 and Amendment No. 190 to Facility Operating License No. NPF-66 for the Byron Station, Unit Nos. 1 and 2, respectively;
3. Amendment No. 205 to Facility Operating License No. NPF-62 for the Clinton Power Station, Unit No. 1;
4. Amendment No. 45 to Facility Operating License No. DPR-2, Amendment No. 245 to Renewed Facility Operating License No. DPR-19, and Amendment No. 238 to Renewed Facility Operating License No. DPR-25 for Dresden Nuclear Power Station, Units 1, 2 and 3, respectively;
5. Amendment No. 215 to Facility Operating License No. NPF-11 and Amendment No. 201 to Facility Operating License No. NPF-18 for the LaSalle County Station, Units 1 and 2, respectively;
6. Amendment No. 217 to Renewed Facility Operating License No. NPF-39 and Amendment No. 179 to Renewed Facility Operating License No. NPF-85 for the Limerick Generating Station, Units 1 and 2, respectively;

7. Amendment No. 287 to Renewed Facility Operating License No. DPR-16 for the Oyster Creek Nuclear Generating Station;
8. Amendment No. 13 to Facility Operating License No. DPR-12, Amendment No. 300 to Renewed Facility Operating License No. DPR-44, and Amendment No. 303 to Renewed Facility Operating License No. DPR-56 for the Peach Bottom Atomic Power Station, Units 1, 2 and 3, respectively;
9. Amendment No. 258 to Renewed Facility Operating License No. DPR-29 and Amendment No. 253 to Renewed Facility Operating License No. DPR-30 for the Quad Cities Nuclear Power Station, Units 1 and 2, respectively; and
10. Amendment No. 287 to Renewed Facility Operating License No. DPR-50 for the Three Mile Island Nuclear Station, Unit 1.

The amendments revise the emergency action level schemes for each site based on the Nuclear Energy Institute (NEI) document NEI 99-01, Revision 6, "Development of Emergency Action Levels for Non-Passive Reactors," dated November 2012 (ADAMS Accession No. ML12326A805). NEI 99-01, Revision 6, was endorsed by the NRC by letter dated March 28, 2013 (ADAMS Accession No. ML13091A209).

In accordance with the Possession-Only License No. DPR-73 Post-Defueling Monitored Storage Safety Analysis Report for the Three Mile Island Nuclear Station, Unit 2, the emergency plan for Unit 1 is considered to encompass Unit 2. Therefore, an amendment to the Unit 2 license is not required.

B. Hanson

- 3 -

A copy of the Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,



Blake Purnell, Project Manager  
Plant Licensing III-2 and  
Planning and Analysis Branch  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. STN 50-456, STN 50-457, and 72-73;  
STN 50-454, STN 50-455, and 72-68; 50-461;  
50-010, 50-237, 50-249, and 72-37; 50-373, 50-374, and 72-70;  
50-352, 50-353, and 72-65; 50-219 and 72-15;  
50-171, 50-277, 50-278, and 72-79; 50-254, 50-265,  
and 72-53; 50-289 and 50-320

Enclosures:

1. Amendment No. 184 to NPF-72
2. Amendment No. 184 to NPF-77
3. Amendment No. 190 to NPF-37
4. Amendment No. 190 to NPF-66
5. Amendment No. 205 to NPF-62
6. Amendment No. 45 to DPR-2
7. Amendment No. 245 to DPR-19
8. Amendment No. 238 to DPR-25
9. Amendment No. 215 to NPF-11
10. Amendment No. 201 to NPF-18
11. Amendment No. 217 to NPF-39
12. Amendment No. 179 to NPF-85
13. Amendment No. 287 to DPR-16
14. Amendment No. 13 to DPR-12
15. Amendment No. 300 to DPR-44
16. Amendment No. 303 to DPR-56
17. Amendment No. 258 to DPR-29
18. Amendment No. 253 to DPR-30
19. Amendment No. 287 to DPR-50
20. Safety Evaluation

cc: Distribution via Listserv



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

EXELON GENERATION COMPANY, LLC

DOCKET NO. STN 50-456

BRAIDWOOD STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 184  
License No. NPF-72

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Exelon Generation Company, LLC (the licensee) dated May 30, 2014, as supplemented by letters dated March 2 and June 5, 2015, 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.

Enclosure 1

2. Accordingly, by Amendment No. 184, the license is amended by changes to the Emergency Plan as set forth in the licensee's application dated May 30, 2014, as supplemented by letters dated March 2 and June 5, 2015, 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 April 29, 2016.

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in black ink, appearing to read 'W M Dean', with a long horizontal flourish extending to the right.

William M. Dean, Director  
Office of Nuclear Reactor Regulation

Date of issuance: July 28, 2015



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

EXELON GENERATION COMPANY, LLC

DOCKET NO. STN 50-457

BRAIDWOOD STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 184  
License No. NPF-77

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Exelon Generation Company, LLC (the licensee) dated May 30, 2014, as supplemented by letters dated March 2 and June 5, 2015, 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, by Amendment No. 184, the license is amended by changes to the Emergency Plan as set forth in the licensee's application dated May 30, 2014, as supplemented by letters dated March 2 and June 5, 2015, 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 April 29, 2016.

FOR THE NUCLEAR REGULATORY COMMISSION

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William M. Dean, Director  
Office of Nuclear Reactor Regulation

Date of issuance: July 28, 2015



**UNITED STATES  
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WASHINGTON, D.C. 20555-0001

EXELON GENERATION COMPANY, LLC

DOCKET NO. STN 50-454

BYRON STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 190  
License No. NPF-37

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Exelon Generation Company, LLC (the licensee) dated May 30, 2014, as supplemented by letters dated March 2 and June 5, 2015, 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, by Amendment No. 190, the license is amended by changes to the Emergency Plan as set forth in the licensee's application dated May 30, 2014, as supplemented by letters dated March 2 and June 5, 2015, 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 April 29, 2016.

FOR THE NUCLEAR REGULATORY COMMISSION

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William M. Dean, Director  
Office of Nuclear Reactor Regulation

Date of issuance: July 28, 2015



**UNITED STATES  
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WASHINGTON, D.C. 20555-0001

EXELON GENERATION COMPANY, LLC

DOCKET NO. STN 50-455

BYRON STATION, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 190  
License No. NPF-66

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Exelon Generation Company, LLC (the licensee) dated May 30, 2014, as supplemented by letters dated March 2 and June 5, 2015, 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.

Enclosure 4

2. Accordingly, by Amendment No. 190, the license is amended by changes to the Emergency Plan as set forth in the licensee's application dated May 30, 2014, as supplemented by letters dated March 2 and June 5, 2015, 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 April 29, 2016.

FOR THE NUCLEAR REGULATORY COMMISSION

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William M. Dean, Director  
Office of Nuclear Reactor Regulation

Date of issuance: July 28, 2015



**UNITED STATES  
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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. 205  
License No. NPF-62

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Exelon Generation Company, LLC (the licensee) dated May 30, 2014, as supplemented by letters dated March 2 and June 5, 2015, 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.

Enclosure 5

2. Accordingly, by Amendment No. 205, the license is amended by changes to the Emergency Plan as set forth in the licensee's application dated May 30, 2014, as supplemented by letters dated March 2 and June 5, 2015, 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 April 29, 2016.

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in black ink, appearing to read 'W. M. Dean', with a long horizontal flourish extending to the right.

William M. Dean, Director  
Office of Nuclear Reactor Regulation

Date of issuance: July 28, 2015



**UNITED STATES  
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WASHINGTON, D.C. 20555-0001

EXELON GENERATION COMPANY, LLC

DOCKET NO. 50-010

DRESDEN NUCLEAR POWER STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

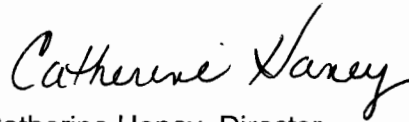
Amendment No. 45  
License No. DPR-2

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Exelon Generation Company, LLC (the licensee) dated May 30, 2014, as supplemented by letters dated March 2 and June 5, 2015, 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.

Enclosure 6

2. Accordingly, by Amendment No. 45, the license is amended by changes to the Emergency Plan as set forth in the licensee's application dated May 30, 2014, as supplemented by letters dated March 2 and June 5, 2015, 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 April 29, 2016.

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in cursive script that reads "Catherine Haney".

Catherine Haney, Director  
Office of Nuclear Material Safety  
and Safeguards

Date of issuance: July 28, 2015



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

EXELON GENERATION COMPANY, LLC

DOCKET NO. 50-237

DRESDEN NUCLEAR POWER STATION, UNIT 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 245  
Renewed License No. DPR-19

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Exelon Generation Company, LLC (the licensee) dated May 30, 2014, as supplemented by letters dated March 2 and June 5, 2015, 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, by Amendment No. 245, the license is amended by changes to the Emergency Plan as set forth in the licensee's application dated May 30, 2014, as supplemented by letters dated March 2 and June 5, 2015, 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 April 29, 2016.

FOR THE NUCLEAR REGULATORY COMMISSION

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William M. Dean, Director  
Office of Nuclear Reactor Regulation

Date of issuance: July 28, 2015



**UNITED STATES  
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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. 238  
Renewed License No. DPR-25

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Exelon Generation Company, LLC (the licensee) dated May 30, 2014, as supplemented by letters dated March 2 and June 5, 2015, 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, by Amendment No. 238, the license is amended by changes to the Emergency Plan as set forth in the licensee's application dated May 30, 2014, as supplemented by letters dated March 2 and June 5, 2015, 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 April 29, 2016.

FOR THE NUCLEAR REGULATORY COMMISSION

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William M. Dean, Director  
Office of Nuclear Reactor Regulation

Date of issuance: July 28, 2015



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

EXELON GENERATION COMPANY, LLC

DOCKET NO. 50-373

LASALLE COUNTY STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 215  
License No. NPF-11

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Exelon Generation Company, LLC (the licensee) dated May 30, 2014, as supplemented by letters dated March 2 and June 5, 2015, 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, by Amendment No. 215, the license is amended by changes to the Emergency Plan as set forth in the licensee's application dated May 30, 2014, as supplemented by letters dated March 2 and June 5, 2015, 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 April 29, 2016.

FOR THE NUCLEAR REGULATORY COMMISSION

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William M. Dean, Director  
Office of Nuclear Reactor Regulation

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WASHINGTON, D.C. 20555-0001

EXELON GENERATION COMPANY, LLC

DOCKET NO. 50-374

LASALLE COUNTY STATION, UNIT 2

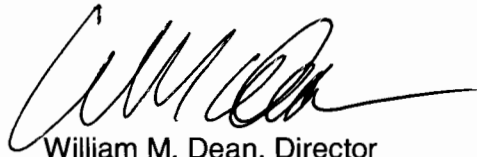
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 201  
License No. NPF-18

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Exelon Generation Company, LLC (the licensee) dated May 30, 2014, as supplemented by letters dated March 2 and June 5, 2015, 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, by Amendment No. 201, the license is amended by changes to the Emergency Plan as set forth in the licensee's application dated May 30, 2014, as supplemented by letters dated March 2 and June 5, 2015, 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 April 29, 2016.

FOR THE NUCLEAR REGULATORY COMMISSION

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William M. Dean, Director  
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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. 217  
Renewed License No. NPF-39

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Exelon Generation Company, LLC (the licensee) dated May 30, 2014, as supplemented by letters dated March 2 and June 5, 2015, 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, by Amendment No. 217, the license is amended by changes to the Emergency Plan as set forth in the licensee's application dated May 30, 2014, as supplemented by letters dated March 2 and June 5, 2015, 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 April 29, 2016.

FOR THE NUCLEAR REGULATORY COMMISSION

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William M. Dean, 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. 179  
Renewed License No. NPF-85

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Exelon Generation Company, LLC (the licensee) dated May 30, 2014, as supplemented by letters dated March 2 and June 5, 2015, 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, by Amendment No. 179, the license is amended by changes to the Emergency Plan as set forth in the licensee's application dated May 30, 2014, as supplemented by letters dated March 2 and June 5, 2015, 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 April 29, 2016.

FOR THE NUCLEAR REGULATORY COMMISSION

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**EXELON GENERATION COMPANY, LLC**

**DOCKET NO. 50-219**

**OYSTER CREEK NUCLEAR GENERATING STATION**

**AMENDMENT TO RENEWED FACILITY OPERATING LICENSE**

Amendment No. 287  
Renewed License No. DPR-16

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Exelon Generation Company, LLC (the licensee) dated May 30, 2014, as supplemented by letters dated March 2 and June 5, 2015, 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, by Amendment No. 287, the license is amended by changes to the Emergency Plan as set forth in the licensee's application dated May 30, 2014, as supplemented by letters dated March 2 and June 5, 2015, 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 April 29, 2016.

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in black ink, appearing to read 'W. M. Dean', with a long horizontal line extending to the right.

William M. Dean, Director  
Office of Nuclear Reactor Regulation

Date of issuance: July 28, 2015



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

EXELON GENERATION COMPANY, LLC

PSEG NUCLEAR LLC

DOCKET NO. 50-171

PEACH BOTTOM ATOMIC POWER STATION, UNIT 1

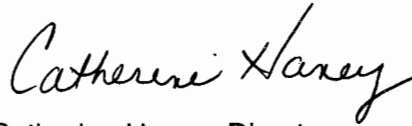
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 13  
License No. DPR-12

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Exelon Generation Company, LLC (the licensee) dated May 30, 2014, as supplemented by letters dated March 2 and June 5, 2015, 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, by Amendment No. 13, the license is amended by changes to the Emergency Plan as set forth in the licensee's application dated May 30, 2014, as supplemented by letters dated March 2 and June 5, 2015, 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 April 29, 2016.

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in black ink, reading "Catherine Haney". The signature is written in a cursive, flowing style.

Catherine Haney, Director  
Office of Nuclear Material Safety  
And Safeguards

Date of issuance: July 28, 2015



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

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. 300  
Renewed License No. DPR-44

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Exelon Generation Company, LLC (the licensee) dated May 30, 2014, as supplemented by letters dated March 2 and June 5, 2015, 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, by Amendment No. 300, the license is amended by changes to the Emergency Plan as set forth in the licensee's application dated May 30, 2014, as supplemented by letters dated March 2 and June 5, 2015, 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 April 29, 2016.

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in black ink, appearing to read 'W. M. Dean', with a long horizontal flourish extending to the right.

William M. Dean, Director  
Office of Nuclear Reactor Regulation

Date of issuance: July 28, 2015



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

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. 303  
Renewed License No. DPR-56

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Exelon Generation Company, LLC (the licensee) dated May 30, 2014, as supplemented by letters dated March 2 and June 5, 2015, 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, by Amendment No. 303., the license is amended by changes to the Emergency Plan as set forth in the licensee's application dated May 30, 2014, as supplemented by letters dated March 2 and June 5, 2015, 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 April 29, 2016.

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in black ink, appearing to read 'W. M. Dean', with a long horizontal flourish extending to the right.

William M. Dean, Director  
Office of Nuclear Reactor Regulation

Date of issuance: July 28, 2015



**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. 258  
Renewed License No. DPR-29

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Exelon Generation Company, LLC (the licensee) dated May 30, 2014, as supplemented by letters dated March 2 and June 5, 2015, 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, by Amendment No. 258, the license is amended by changes to the Emergency Plan as set forth in the licensee's application dated May 30, 2014, as supplemented by letters dated March 2 and June 5, 2015, 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 April 29, 2016.

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in black ink, appearing to read 'W. M. Dean', with a long horizontal flourish extending to the right.

William M. Dean, Director  
Office of Nuclear Reactor Regulation

Date of issuance: July 28, 2015



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. 253  
Renewed License No. DPR-30

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Exelon Generation Company, LLC (the licensee) dated May 30, 2014, as supplemented by letters dated March 2 and June 5, 2015, 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, by Amendment No. 253, the license is amended by changes to the Emergency Plan as set forth in the licensee's application dated May 30, 2014, as supplemented by letters dated March 2 and June 5, 2015, 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 April 29, 2016.

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in black ink, appearing to read 'W. M. Dean', with a long horizontal flourish extending to the right.

William M. Dean, Director  
Office of Nuclear Reactor Regulation

Date of issuance: July 28, 2015



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

EXELON GENERATION COMPANY, LLC

DOCKET NO. 50-289

THREE MILE ISLAND NUCLEAR STATION, UNIT NO. 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 287  
Renewed License No. DPR-50

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Exelon Generation Company, LLC (the licensee) dated May 30, 2014, as supplemented by letters dated March 2 and June 5, 2015, 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, by Amendment No. 287, the license is amended by changes to the Emergency Plan as set forth in the licensee's application dated May 30, 2014, as supplemented by letters dated March 2 and June 5, 2015, 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 April 29, 2016.

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in black ink, appearing to read 'W. M. Dean', with a long horizontal flourish extending to the right.

William M. Dean, Director  
Office of Nuclear Reactor Regulation

Date of issuance: July 28, 2015



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 184 TO FACILITY OPERATING LICENSE NO. NPF-72,  
AMENDMENT NO. 184 TO FACILITY OPERATING LICENSE NO. NPF-77,  
AMENDMENT NO. 190 TO FACILITY OPERATING LICENSE NO. NPF-37,  
AMENDMENT NO. 190 TO FACILITY OPERATING LICENSE NO. NPF-66,  
AMENDMENT NO. 205 TO FACILITY OPERATING LICENSE NO. NPF-62,  
AMENDMENT NO. 45 TO FACILITY OPERATING LICENSE NO. DPR-2,  
AMENDMENT NO. 245 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-19,  
AMENDMENT NO. 238 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-25,  
AMENDMENT NO. 215 TO FACILITY OPERATING LICENSE NO. NPF-11,  
AMENDMENT NO. 201 TO FACILITY OPERATING LICENSE NO. NPF-18,  
AMENDMENT NO. 217 TO RENEWED FACILITY OPERATING LICENSE NO. NPF-39,  
AMENDMENT NO. 179 TO RENEWED FACILITY OPERATING LICENSE NO. NPF-85,  
AMENDMENT NO. 287 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-16,  
AMENDMENT NO. 13 TO FACILITY OPERATING LICENSE NO. DPR-12,  
AMENDMENT NO. 300 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-44,  
AMENDMENT NO. 303 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-56,  
AMENDMENT NO. 258 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-29,  
AMENDMENT NO. 253 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-30,  
AMENDMENT NO. 287 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-50,  
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

OYSTER CREEK NUCLEAR GENERATING STATION

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

QUAD CITIES NUCLEAR POWER STATION, UNITS 1 AND 2

THREE MILE ISLAND STATION, UNITS 1 AND 2

DOCKET NOS. STN 50-456, STN 50-457, and 72-73; STN 50-454, STN 50-455,  
and 72-68; 50-461; 50-010, 50-237, 50-249 and 72-37; 50-373, 50-374, and 72-70;  
50-352, 50-353, and 72-65; 50-219 and 72-15; 50-171, 50-277, 50-278, and 72-79;  
50-254, 50-265, and 72-53; 50-289 and 50-320

## 1.0 INTRODUCTION

By application dated May 30, 2014 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML14164A053), as supplemented by letters dated March 2 and June 5, 2015 (ADAMS Accession Nos. ML15071A122 and ML15159B025, respectively), Exelon Generation Company, LLC (Exelon, the licensee) requested a change to the emergency plans for the 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; Oyster Creek Nuclear Generating Station (Oyster Creek); Peach Bottom Atomic Power Station (Peach Bottom), Units 1, 2, and 3; Quad Cities Nuclear Power Station (Quad Cities), Units 1 and 2; and Three Mile Island Station (TMI), Units 1 and 2. The proposed change is to revise the emergency action level (EAL) schemes for each site based on the Nuclear Energy Institute (NEI) document NEI 99-01, Revision 6, "Development of Emergency Action Levels for Non-Passive Reactors," dated November 2012 (ADAMS Accession No. ML12326A805). NEI 99-01, Revision 6, was endorsed by the U.S. Nuclear Regulatory Commission (NRC or Commission) by letter dated March 28, 2013 (ADAMS Accession No. ML13091A209).

The supplements dated March 2 and June 5, 2015, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the NRC staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on September 16, 2014 (79 FR 55511).

## 2.0 REGULATORY EVALUATION

The applicable regulations and guidance for the emergency plans are as follows:

### 2.1 Regulations

Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.47, "Emergency plans," sets forth emergency plan requirements for nuclear power plant facilities. The regulations in 10 CFR 50.47(a)(1)(i) state, in part, that

[. . .] no initial operating license for a nuclear power reactor will be issued unless a finding is made by the NRC that there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency.

Section 50.47(b) establishes the standards that the onsite and offsite emergency response plans must meet for NRC staff to make a positive finding that there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. Planning standard (4) of this section requires that onsite and offsite emergency response plans meet the following standard:

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

Section 50.47(b)(4) to 10 CFR emphasizes use of a standard emergency classification and action level scheme, assuring that implementation methods are relatively consistent throughout the industry for a given reactor and containment design while simultaneously providing an opportunity for a licensee to modify its EAL scheme as necessary to address plant-specific design considerations or preferences.

Section IV.B 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 site 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.

## 2.2 Guidance

The EAL development guidance was initially established in Generic Letter (GL), 79-50 (Reference 1), and was subsequently established in NUREG-0654/FEMA-REP-1 (Reference 2), which was endorsed as an approach for the development of an EAL scheme via NRC Regulatory Guide (RG) 1.101, Revision 2 (Reference 8).

As industry and regulatory experience was gained with the implementation and use of EAL schemes, the industry issued a revised EAL scheme development guidance to reflect lessons learned. To date, NUMARC/NESP-007 (Reference 3) and NEI 99-01, Revisions 4, 5, and 6 (References 4, 5, and 6), were provided to the NRC for review and endorsement as generic (non-plant-specific) EAL development guidance. RG 1.101, Revisions 3 and 4 (Reference 8), endorsed NUMARC/NESP-007 and NEI 99-01, Revision 4, as acceptable alternatives for licensees to consider in the development of their plant-specific EAL schemes, and allowed licensees to develop plant-specific EALs based upon an alternative approach not endorsed by the NRC. NEI 99-01, Revision 5, was endorsed by the NRC as generic (non-plant-specific) EAL Scheme development guidance via letter dated February 22, 2008 (Reference 9). NEI 99-01, Revision 6, was endorsed by the NRC as generic (non-plant-specific) EAL scheme development guidance via letter dated March 28, 2013 (Reference 7).

The EAL development guidance contained in GL 79-50, NUREG-0654/FEMA-REP-1, NUMARC/NESP-007, and NEI 99-01, Revisions 4, 5, and 6, are all considered generic EAL scheme development guidance, as they are not plant-specific and may not be entirely applicable for some reactor designs. However, the guidance contained in these documents bounds the most typical accident/event scenarios for which emergency response is necessary, in a format that allows for industry standardization and consistent regulatory oversight. Most licensees choose to develop plant-specific EAL schemes using the latest endorsed EAL development guidance with appropriate plant-specific alterations as applicable. Pursuant to 10 CFR Part 50, Appendix E, Section IV.B (2), a revision to an EAL must be approved by the NRC before implementation if the licensee is changing from one EAL scheme to another EAL scheme.

In summary, the NRC staff considers the following methods acceptable for use in developing plant-specific EALs that meet the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), with the understanding that licensees may want to develop EALs that differ from the applicable guidance document as allowed in RG 1.101 and in the applicable endorsement letters:

- Appendix 1, "Emergency Action Level Guidelines for Nuclear Power Plants," to NUREG-0654/FEMA-REP-1, "Criteria for Preparation and Evaluation of

Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," dated November 1980 (Reference 2);

- NUMARC/NESP-007, Revision 2, "Methodology for Development of Emergency Action Levels," dated January 1992 (Reference 3);
- NEI 99-01, Revision 4, "Methodology for Development of Emergency Action Levels," dated January 2003 (Reference 4);
- NEI 99-01, Revision 5, "Methodology for Development of Emergency Action Levels," dated February 2008 (Reference 5); and
- NEI 99-01, Revision 6, "Development of Emergency Action Levels for Non-Passive Reactors," dated November 2012 (Reference 6).

NRC Regulatory Issue Summary (RIS) 2003-18, with Supplements 1 and 2, "Use of NEI 99-01, Methodology for Development of Emergency Action Levels" (Reference 10), also provides guidance for developing or changing a standard emergency classification and action level scheme. In addition, this RIS and its supplements provide recommendations to assist licensees, consistent with Section IV.B of Appendix E to Part 50, in determining whether to seek prior NRC approval of deviations from the guidance.

Regardless of the generic EAL scheme development guidance document used by a licensee to develop its EAL scheme, or if a licensee chose to develop its EAL scheme using an alternative approach not endorsed by the NRC, or a combination of the two (most typical), the NRC staff reviews the EAL scheme to assure it meets the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4).

### 2.3 Licensing Basis

By letter dated June 30, 2011 (ADAMS Accession No. ML111650097), the NRC approved the licensee's current EAL scheme which is based on NEI 99-01, Revision 5. The licensee's EALs are contained in site annexes to the emergency plan and are not unit-specific. Dresden, Unit 1, Peach Bottom, Unit 1, and TMI, Unit 2 (TMI-2), are permanently shutdown and defueled, but are co-located on sites with operating reactors.

Dresden, Unit 1, is co-located with Units 2 and 3. Spent fuel from Dresden Unit 1 is currently stored in the onsite independent spent fuel storage installation (ISFSI) and in the Unit 3 spent fuel pool.

Peach Bottom, Unit 1, is co-located with Units 2 and 3. All spent fuel for Peach Bottom, Unit 1, has been removed from the site.

TMI-2 is co-located with TMI Unit 1 (TMI-1). All spent fuel for TMI-2 has been removed from the site except for some debris in the reactor coolant system. GPU Nuclear retains the license for TMI-2 and is owned by FirstEnergy Corporation. As stated in the Post-Defueling Monitored Storage (PDMS) Safety Analysis Report for TMI-2:

Due to the non-operating and defueled status of TMI-2 during PDMS, there is no potential for any significant off-site radioactive releases and, due to the existence of TMI-1 on the same site; emergency planning requirements for the site are

dominated by TMI-1. Therefore, the limited emergency planning necessary to accommodate the existence of TMI-2 on the same site as TMI-1 has been incorporated into one integrated emergency plan. There exists only one Emergency Preparedness Plan for the TMI station. The Plan encompasses both TMI-1 and TMI-2 and is under the authority of Exelon Generation Company, the TMI-1 License holder.

Except for Clinton and TMI, all sites have an operational ISFSI.

### 3.0 TECHNICAL EVALUATION

In its application, the licensee proposes to revise its current EAL scheme based on NEI 99-01, Revision 5, to one based on NEI 99-01, Revision 6 (Reference 6). In its application and supplemental letters, the licensee submitted the proposed EAL scheme, the technical basis, a comparison matrix, the EAL numbering scheme, and an explanation for any difference or deviation from NEI 99-01, Revision 6. The comparison matrix provided a cross-reference relating the proposed EAL scheme to the EAL scheme in NEI 99-01, Revision 6. The NRC staff's review is based on the proposed site-specific EAL schemes provided with the March 2, 2015, letter (Reference 14), as supplemented by the June 5, 2015, letter (Reference 15).

The application states that the licensee used the terms "difference" and "deviation" as defined in RIS 2003-18, as supplemented, when comparing its proposed plant-specific EALs to the generic EALs in NEI 99-01, Revision 6. The NRC staff notes that both the current and proposed EALs have modifications from the guidance due to specific plant designs and licensee preference.

Although the EALs must be plant-specific, the NRC staff reviewed the proposed 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 and disposing of the issues of completeness and accuracy raised regarding 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
- Objective and observable values.

To aid in understanding the nomenclature used in this safety evaluation, the following convention is used: the first letter signifies the EAL category; the second letter signifies the emergency classification level (G = General Emergency (GE), S = Site Area Emergency (SAE), A = Alert, and U = Notification of Unusual Event (UE)); and the number is the applicable number from the plant-specific EAL scheme. This safety evaluation uses the numbering system from the plant-specific EAL scheme; however, the numbering system from the generic EAL scheme development guidance contained in NEI 99-01, Revision 6 (Reference 6), is annotated in [brackets] to aid in cross-referencing the site-specific EAL numbering convention with that of the guidance.

### 3.1 Category 'R' – Abnormal Radiological Release/Radiological Effluent

#### 3.1.1 EAL Set RG1/RS1/RA1/RU1 [AG1/AS1/AA1/AU1]

This EAL set is based upon plant-specific indications of a release of radioactivity (gaseous and/or liquid). The NRC staff has determined that the progression from UE to GE is appropriate and consistent with EAL scheme development guidance.

The licensee chose to modify this EAL set by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. However, the NRC staff has determined that the numbering, sequencing, and format of this EAL set are consistent with the overall EAL scheme development guidance and with the site-specific implementation strategies provided, and are therefore considered part of a standard EAL scheme.

The instrumentation and set points derived for this EAL set are consistent with the overall EAL scheme development guidance, address the plant-specific implementation strategies provided, and are consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4).

The NRC staff concludes that the plant-specific implementation method for this EAL set is in alignment with the key characteristics of an effective EAL scheme, meets the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and is therefore acceptable for implementation.

#### 3.1.2 EAL Set RG2/RS2/RA2/RU2 [AG2/AS2/AA2/AU2]

This EAL set is based upon plant-specific indications of fuel uncover, including spent fuel stored in the spent fuel pool or refueling pathway. The NRC staff has determined that the progression from UE to GE is appropriate and consistent with EAL scheme development guidance. The SAE and GE classification levels for this specific accident progression are also bounded by indications available in the fission product barrier matrix, as well as in EALs RS1 and RG1.

The licensee chose to modify this EAL set by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. However, the NRC staff has determined that the numbering, sequencing, and format of this EAL set are consistent with the overall EAL scheme



development guidance and with the site-specific implementation strategies provided, and are therefore considered part of a standard EAL scheme.

The instrumentation and set points derived for this EAL set are consistent with the overall EAL scheme development guidance, address the plant-specific implementation strategies provided, and are consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4).

The NRC staff concludes that the plant-specific implementation method for this EAL set is in alignment with the key characteristics of an effective EAL scheme, meets the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and is therefore acceptable for implementation.

### 3.1.3 EAL Set RA3/RU3 [AA3/SU3]

This EAL set is based upon radiation levels in the plant that limit normal access as well as when the plant has indications of fuel clad degradation. This Alert EAL is primarily intended to ensure that the plant emergency response organization is activated to support the control room in removing the impediment to normal access as well as assisting in quantifying potential damage to the fuel. Indications of increasing radiation levels in the plant are bounded by indication of fission product barrier loss or potential loss, as well as in RS1 and RG1.

The licensee chose to modify this EAL by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. However, the NRC staff has determined that the numbering, sequencing, and format of this EAL is consistent with the overall EAL scheme development guidance and with the site-specific implementation strategies provided, and are therefore considered part of a standard EAL scheme.

The NRC staff concludes that the plant-specific implementation method for this EAL is in alignment with the key characteristics of an effective EAL scheme, meets the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and is therefore acceptable for implementation.

## 3.2 Category 'C' – Cold Shutdown/Refueling System Malfunction

### 3.2.1 EAL Set CG6/CS6/CA6/CU6 [CG1/CS1/CA1/CU1]

This EAL set is based upon a loss of reactor pressure vessel inventory and/or reactor coolant system (RCS) leakage. The NRC staff has determined that the progression from UE to GE is appropriate and consistent with EAL scheme development guidance.

The NRC staff has also determined that the numbering, sequencing, and format of this EAL set are consistent with the overall EAL scheme development guidance and with the plant-specific implementation strategies provided, and are therefore considered part of a standard EAL scheme.

The instrumentation and set points derived for this EAL set are consistent with the overall EAL scheme development guidance, address the plant-specific implementation strategies provided, and are consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4).

The NRC staff concludes that the plant-specific implementation method for this EAL set is in alignment with the key characteristics of an effective EAL scheme, meets the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and is therefore acceptable for implementation.

### 3.2.2 EAL CA1/CU1 [CA2/CU2]

This EAL set is based upon a loss of available power to emergency power electrical busses. The NRC staff has determined that the progression from UE to Alert is appropriate and consistent with EAL scheme development guidance. The SAE and GE classification levels for this specific accident progression are bounded by indications available in EALs RS1 and RG1.

The NRC staff has also determined that the numbering, sequencing, and format of this EAL set are consistent with the overall EAL scheme development guidance and with the plant-specific implementation strategies provided, and are therefore considered part of a standard EAL scheme.

The instrumentation and set points derived for this EAL set are consistent with the overall EAL scheme development guidance, address the plant-specific implementation strategies provided, and are consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4).

The NRC staff concludes that the plant-specific implementation method for this EAL set is in alignment with the key characteristics of an effective EAL scheme, meets the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and is therefore acceptable for implementation.

### 3.2.3 EAL Set CA5/CU5 [CA3/CU3]

This EAL set is based upon an inability to maintain control of decay heat removal. The NRC staff has determined that the progression from UE to Alert is appropriate and consistent with EAL scheme development guidance. The SAE and GE classification levels for this specific accident progression are bounded by indications available in EALs RS1 and RG1.

The NRC staff has also determined that the numbering, sequencing, and format of this EAL set are consistent with the overall EAL scheme development guidance and with the plant-specific implementation strategies provided, and are therefore considered part of a standard EAL scheme.

The instrumentation and set points derived for this EAL set are consistent with the overall EAL scheme development guidance, address the plant-specific implementation strategies provided, and are consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4).

The NRC staff concludes that the plant-specific implementation method for this EAL set is in alignment with the key characteristics of an effective EAL scheme, meets the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and is therefore acceptable for implementation.

#### 3.2.4 EAL CU3 [CU4]

This EAL is not part of an EAL set within the overall EAL scheme. The EAL's intent is to ensure that an EAL is declared when a loss of direct current (dc) power event occurs, as this condition compromises the ability of the licensee to monitor and control the removal of decay heat during cold shutdown or refueling modes of operation. The Alert, SAE, and GE classification levels for this specific accident progression are bounded by indications available in EALs RA1, RS1, and RG1.

The NRC staff has determined that the numbering, sequencing, and format of this EAL are consistent with the overall EAL scheme development guidance and with the plant-specific implementation strategies provided, and are therefore considered part of a standard EAL scheme.

The instrumentation and set points derived for this EAL are consistent with the overall EAL scheme development guidance, address the plant-specific implementation strategies provided, and are consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4).

The NRC staff concludes that the plant-specific implementation method for this EAL is in alignment with the key characteristics of an effective EAL scheme, meets the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and is therefore acceptable for implementation.

#### 3.2.5 EAL CU4 [CU5]

This EAL is not part of an EAL set within the overall EAL scheme. The EAL's intent is to highlight the importance of emergency communications by ensuring that an EAL is declared if normal communication methods for onsite and offsite personnel, or for offsite response organizations including the NRC, are lost. The NRC staff has determined that no escalation path is necessary for this EAL.

The NRC staff has also determined that the numbering, sequencing, and format of this EAL are consistent with the overall EAL scheme development guidance and with the plant-specific implementation strategies provided, and are therefore considered part of a standard EAL scheme.

The communication methods derived for this EAL are consistent with the overall EAL scheme development guidance, address the plant-specific implementation strategies provided, and are consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4).

The NRC staff concludes that the plant-specific implementation method for this EAL is in alignment with the key characteristics of an effective EAL scheme, meets the requirements of

Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and is therefore acceptable for implementation.

### 3.2.6 EAL CA2 [CA6]

This EAL is not part of an EAL set within the overall EAL scheme. The EAL's intent is to ensure that an EAL is declared when hazardous events lead to potential damage to safety systems. The SAE and GE classification levels for this accident progression are bounded by indications available in EALs RS1, and RG1.

The NRC staff has determined that the numbering, sequencing, and format of this EAL are consistent with the overall EAL scheme development guidance and with the plant-specific implementation strategies provided, and are therefore considered part of a standard EAL scheme.

The NRC staff concludes that the plant-specific implementation method for this EAL is in alignment with the key characteristics of an effective EAL scheme, meets the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and is therefore acceptable for implementation.

## 3.3 Category 'E' – Independent Spent Fuel Storage Installation (ISFSI)

### 3.3.1 EAL E-HU1

This EAL is not applicable to Clinton and TMI, and is not part of an EAL set within the overall EAL scheme. The EAL's intent is limited to radiological events at the ISFSI. The NRC staff has determined that, while security-related events at the ISFSI are also of concern, they are bounded by the licensee's EAL HA1.

The NRC staff has also determined that the numbering, sequencing, and format of this EAL are consistent with the overall EAL scheme development guidance and with the plant-specific implementation strategies provided, and are therefore considered part of a standard EAL scheme.

The NRC staff concludes that the plant-specific implementation method for this EAL is in alignment with the key characteristics of an effective EAL scheme, meets the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and is therefore acceptable for implementation.

## 3.4 Category 'F' – Fission Product Barrier Matrix

This category is unique in the overall EAL scheme, as the thresholds are not intended to be stand-alone indicators of a particular event occurring at the plant. Rather, they are to be used as triggers within the particular logic configuration needed to reflect a loss or potential loss of a fission product barrier. U.S. nuclear power plants have three fission product barriers: fuel cladding, the RCS, and the primary containment. Licensees are to develop thresholds that

provide EAL decision-makers input into making an event declaration based upon degradation of one or more of these fission product barriers.

There are numerous triggers used as logic inputs to decide on the appropriate classification based upon the number of loss and/or potential loss indicators that are triggered for each barrier. By design, these indicators are redundant with other similar indicators in the Category 'R' and Category 'M' EAL sets, due to the importance for licensees to be able to recognize reactor and/or fission product barrier events as timely as possible using the best available indicators from several different perspectives.

The NRC staff verified that the logic used to determine the appropriate emergency classification is consistent with the generic EAL scheme development guidance.

The instrumentation and set points derived for this EAL category are consistent with the overall EAL scheme development guidance, address the plant-specific implementation strategies provided, and are consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4).

The licensee chose to modify this EAL category by using a plant-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. However, the NRC staff has determined that the numbering, sequencing, and format of this EAL category are consistent with the overall EAL scheme development guidance and with the plant-specific implementation strategies provided, and are therefore considered part of a standard EAL scheme.

The NRC staff concludes that the plant-specific implementation method for this EAL category is in alignment with the key characteristics of an effective EAL scheme and, while different than that provided in the generic EAL development guidance, continues to meet the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and is therefore acceptable for implementation.

### 3.5 Category 'H' – Hazards

#### 3.5.1 EAL Set HG1/HS1/HA1/HU1

This EAL set is based upon security-related events originally developed in accordance with the guidance from NRC Bulletin 2005-02 (Reference 11) or RIS 2006-12 (Reference 12) for licensees to implement regardless of the specific version of the generic EAL scheme development guidance used, or if the particular licensee developed its EAL scheme using an alternative approach. Based upon lessons learned from the implementation and use of this EAL set, particularly the insights gained from combined security and emergency preparedness drills, the NRC staff and the industry worked to enhance the language of these EALs so as to eliminate any confusion without changing the intent of the EAL set as set forth in NRC Bulletin 2005-02 and RIS 2006-12.

The NRC staff has determined that the numbering, sequencing, and format of this EAL set are consistent with the overall EAL scheme development guidance and with the plant-specific

implementation strategies provided, and are therefore considered part of a standard EAL scheme.

The NRC staff has also determined that this EAL set is consistent with the guidance provided in NRC Bulletin 2005-02 and RIS 2006-12, as further enhanced by the lessons learned from implementation and drills, and revised in NEI 99-01, Revision 6 (Reference 6).

The NRC staff concludes that the plant-specific implementation method for this EAL set is in alignment with the key characteristics of an effective EAL scheme, meets the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and is therefore acceptable for implementation.

### 3.5.2 EAL HU4 [HU2]

This EAL is not part of an EAL set within the overall EAL scheme. This EAL is based upon the effect that a seismic event may have on the facility. The Alert, SAE, and GE classification levels for this specific accident progression are bounded by indications available in the fission product barrier matrix, as well as in EALs RA1, RS1, RG1, CA2, and MA5.

The NRC staff has determined that the numbering, sequencing, and format of this EAL are consistent with the overall EAL scheme development guidance and with the plant-specific implementation strategies provided, and are therefore considered part of a standard EAL scheme.

The NRC staff concludes that the plant-specific implementation method for this EAL is in alignment with the key characteristics of an effective EAL scheme, and while different than that provided in the generic EAL development guidance, it continues to meet the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and is therefore acceptable for implementation.

### 3.5.3 EAL HU6 [HU3]

This EAL is not part of an EAL set within the overall EAL scheme. This EAL is based upon the effect that natural and destructive hazards may have on the facility. The Alert, SAE, and GE classification levels for this specific accident progression are bounded by indications available in the fission product barrier matrix, as well as in EALs RA1, RS1, RG1, CA2, and MA5.

The NRC staff has determined that the numbering, sequencing, and format of this EAL are consistent with the overall EAL scheme development guidance and with the plant-specific implementation strategies provided, and are therefore considered part of a standard EAL scheme.

The instrumentation and set points derived for this EAL are consistent with the overall EAL scheme development guidance, address the plant-specific implementation strategies provided, and are consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4).

The NRC staff concludes that the plant-specific implementation method for this EAL is in alignment with the key characteristics of an effective EAL scheme and, while different than that provided in the generic EAL development guidance, continues to meet the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and is therefore acceptable for implementation.

#### 3.5.4 EAL HU3 [HU4]

This EAL is not part of an EAL set within the overall EAL scheme. This EAL is based upon the effect that fires may have on the facility. The Alert, SAE, and GE classification levels for this specific accident progression are bounded by indications available in the fission product barrier matrix, as well as in EALs RA1, RS1, RG1, CA2, and MA5.

The NRC staff has determined that the numbering, sequencing, and format of this EAL are consistent with the overall EAL scheme development guidance and with the plant-specific implementation strategies provided, and are therefore considered part of a standard EAL scheme.

The NRC staff concludes that the plant-specific implementation method for this EAL is in alignment with the key characteristics of an effective EAL scheme and, while different than that provided in the generic EAL development guidance, continues to meet the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and is therefore acceptable for implementation.

#### 3.5.5 EAL HA5

This EAL is not part of an EAL set within the overall EAL scheme. This EAL is based upon the effect that toxic, corrosive, asphyxiant, or flammable gases may have on the facility. The SAE and GE classification levels for this specific accident progression are bounded by indications available in the fission product barrier matrix, as well as in EALs RS1 and RG1.

The NRC staff has determined that the numbering, sequencing, and format of this EAL are consistent with the overall EAL scheme development guidance and with the plant-specific implementation strategies provided, and are therefore considered part of a standard EAL scheme.

The NRC staff concludes that the plant-specific implementation method for this EAL is in alignment with the key characteristics of an effective EAL scheme and, while different than that provided in the generic EAL development guidance, continues to meet the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and is therefore acceptable for implementation.

#### 3.5.6 EAL Set HS2/HA2 [HS6/HA6]

This EAL set is based upon control room evacuation and the inability to control critical plant systems remotely. The NRC staff has determined that the progression from Alert to SAE is appropriate and consistent with EAL scheme development guidance. The GE classification

level for this specific accident progression is bounded by indications available in the fission product barrier matrix, as well as in EAL RG1.

The NRC staff has also determined that the numbering, sequencing, and format of this EAL set are consistent with the overall EAL scheme development guidance and with the plant-specific implementation strategies provided, and are therefore considered part of a standard EAL scheme.

The NRC staff concludes that the plant-specific implementation method for this EAL set is in alignment with the key characteristics of an effective EAL scheme, meets the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and is therefore acceptable for implementation.

### 3.5.7 EAL Set HG7/HS7/HA7/HU7

This EAL set is based upon providing the decision-makers with EALs to consider when, in their judgment, an emergency classification is warranted.

The NRC staff has determined that the numbering, sequencing and format of this EAL set are consistent with the overall EAL scheme development guidance, are consistent with the plant-specific implementation strategies provided, and are therefore considered part of a standard EAL scheme.

The NRC staff concludes that the plant-specific implementation method for this EAL set is in alignment with the key characteristics of an effective EAL scheme and, while different than that provided in the generic EAL development guidance, continues to meet the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and is therefore acceptable for implementation.

## 3.6 Category 'M' – System Malfunction

### 3.6.1 EAL Set MG1/MS1/MA1/MU1 [SG1/SS1/SA1/SU1]

This EAL set is based upon a loss of available alternating current (ac) power sources to the emergency busses. The NRC staff has determined that the progression from UE to GE is appropriate and consistent with EAL scheme development guidance.

The licensee chose to modify this EAL set by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. However, the NRC staff has determined that the numbering, sequencing, and format of this EAL set are consistent with the overall EAL scheme development guidance and with the site-specific implementation strategies provided, and are therefore considered part of a standard EAL scheme.

The instrumentation, values, and listing of applicable power sources derived for this EAL set are consistent with the overall EAL scheme development guidance, address the plant-specific



implementation strategies provided, and are consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4).

The NRC staff concludes that the plant-specific implementation method for this EAL set is in alignment with the key characteristics of an effective EAL scheme, meets the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and is therefore acceptable for implementation.

### 3.6.2 EAL Set MG2/MS2 [SG8/SS8]

This EAL set is based upon a loss of site ac and dc sources. The EAL's intent is to ensure that an EAL is declared when a loss of ac or dc power event occurs, as this condition compromises the ability of the licensee to monitor and control the removal of decay heat.

The licensee chose to modify this EAL set by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. However, the NRC staff has determined that the numbering, sequencing, and format of this EAL set are consistent with the overall EAL scheme development guidance and with the site-specific implementation strategies provided, and are therefore considered part of a standard EAL scheme.

The NRC staff concludes that the plant-specific implementation method for this EAL is in alignment with the key characteristics of an effective EAL scheme, meets the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and is therefore acceptable for implementation.

### 3.6.3 EAL Set MA4/MU4 [SA2/SU2]

This EAL set is based upon the effect that a loss of available indicators in the control room has on the facility. The NRC staff has determined that the progression from UE to Alert is appropriate and consistent with EAL scheme development guidance. The SAE and GE classification levels for this specific accident progression are bounded by indications available in the fission product barrier matrix, as well as in EALs RS1 and RG1.

The licensee chose to modify this EAL set by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. However, the NRC staff has determined that the numbering, sequencing, and format of this EAL set are consistent with the overall EAL scheme development guidance and with the site-specific implementation strategies provided, and are therefore considered part of a standard EAL scheme.

The instrumentation and set points derived for this EAL set are consistent with the overall EAL scheme development guidance, address the plant-specific implementation strategies provided, and are consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4).

The NRC staff concludes that the plant-specific implementation method for this EAL set is in alignment with the key characteristics of an effective EAL scheme, meets the requirements of

Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and is therefore acceptable for implementation.

#### 3.6.4 EAL MU6 [SU4]

This EAL is not part of an EAL set within the overall EAL scheme. The EAL's intent is to ensure that an EAL is declared when the plant has indications of RCS leakage. By design, this EAL is redundant with corresponding indicators from a loss or potential loss of fission product barriers, as well as radiation monitoring, to ensure reactor and/or fission product barrier events are recognized regardless of the particular EAL table a licensee may be referring to. EAL escalation is bounded by indications available in the fission product barrier matrix, as well as in EALs RA1, RS1, and RG1.

The licensee chose to modify this EAL set by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. However, the NRC staff has determined that the numbering, sequencing, and format of this EAL set are consistent with the overall EAL scheme development guidance and with the site-specific implementation strategies provided, and are therefore considered part of a standard EAL scheme.

The NRC staff concludes that the plant-specific implementation method for this EAL is in alignment with the key characteristics of an effective EAL scheme, meets the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and is therefore acceptable for implementation.

#### 3.6.5 EAL Set MS3/MA3/MU3 [SS5/SA5/SU5]

This EAL set is based upon the effect that a failure of the reactor protection system may have on the plant. The NRC staff has determined that the progression from UE to SAE is appropriate and consistent with EAL scheme development guidance. The GE classification level for this event is bounded by indications available in the fission product barrier matrix, as well as in EAL RG1.

The licensee chose to modify this EAL set by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. However, the NRC staff has determined that the numbering, sequencing, and format of this EAL set are consistent with the overall EAL scheme development guidance and with the site-specific implementation strategies provided, and are therefore considered part of a standard EAL scheme.

The instrumentation and set points derived for this EAL set are consistent with the overall EAL scheme development guidance, address the plant-specific implementation strategies provided, and are consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4).

The NRC staff concludes that the plant-specific implementation method for this EAL set is in alignment with the key characteristics of an effective EAL scheme and, while different than that provided in the generic EAL development guidance, continues to meet the requirements of

Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and is therefore acceptable for implementation.

#### 3.6.6 EAL MU7 [SU6]

This EAL is not part of an EAL set within the overall EAL scheme. The EAL's intent is to highlight the importance of emergency communications by ensuring that an EAL is declared if normal communication methods for onsite and offsite personnel, or for offsite response organizations including the NRC, are lost. The NRC staff has determined that no escalation path is necessary.

The licensee chose to modify this EAL set by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. However, the NRC staff has determined that the numbering, sequencing, and format of this EAL set are consistent with the overall EAL scheme development guidance and with the site-specific implementation strategies provided, and are therefore considered part of a standard EAL scheme.

The communication methods derived for this EAL are consistent with the overall EAL scheme development guidance, address the plant-specific implementation strategies provided, and are consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4).

The NRC staff concludes that the plant-specific implementation method for this EAL is in alignment with the key characteristics of an effective EAL scheme, meets the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and is therefore acceptable for implementation.

#### 3.6.7 EAL MU8 [SU7]

This EAL is only applicable to Braidwood, Byron, and TMI, and is not part of an EAL set within the overall EAL scheme. The EAL's intent is to ensure that an EAL is declared when the plant has indications of containment barrier degradation. By design, this EAL is redundant with corresponding indicators from a loss or potential loss of fission product barriers, as well as radiation monitoring, to ensure reactor and/or fission product barrier events are recognized regardless of the particular EAL table a licensee may be referring to. EAL escalation is bounded by indications available in the fission product barrier matrix, as well as in EALs RA1, RS1, and RG1.

The licensee chose to modify this EAL set by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. However, the NRC staff has determined that the numbering, sequencing, and format of this EAL set are consistent with the overall EAL scheme development guidance and with the site-specific implementation strategies provided, and are therefore considered part of a standard EAL scheme.

The NRC staff concludes that the plant-specific implementation method for this EAL is in alignment with the key characteristics of an effective EAL scheme, meets the requirements of

Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and is therefore acceptable for implementation.

#### 3.6.8 EAL MA5 [SA9]

This EAL is not part of an EAL set within the overall EAL. The EAL's intent is to ensure that an EAL is declared when hazardous events lead to potential damage to safety systems. The SAE and GE classification levels for this accident progression are bounded by indications available in the fission product barrier matrix, as well as in EALs RS1 and RG1.

The licensee chose to modify this EAL set by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. However, the NRC staff has determined that the numbering, sequencing, and format of this EAL set are consistent with the overall EAL scheme development guidance and with the site-specific implementation strategies provided, and are therefore considered part of a standard EAL scheme.

The NRC staff concludes that the plant-specific implementation method for this EAL is in alignment with the key characteristics of an effective EAL scheme, meets the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and is therefore acceptable for implementation.

#### 3.7 Summary

The NRC staff has reviewed the technical bases for the proposed EAL scheme, the modifications from NEI 99-01, Revision 6, and the licensee's evaluation of the proposed changes. The licensee chose to modify its proposed EAL scheme from the generic EAL scheme development guidance provided in NEI 99-01, Revision 6, in order to adopt a format that is better aligned with how it currently implements its EALs, as well as with plant-specific writer's guides and preferences. The NRC staff determined that these modifications do not alter the intent of any specific EAL within a set, category, or within the entire EAL scheme described in NEI 99-01, Revision 6 (Reference 6).

Based on its review, the NRC staff has determined that the proposed EAL scheme uses objective and observable values, is worded in a manner that addresses human factors engineering and user friendliness concerns, follows logical progressions for escalating events, and allows for event downgrading and upgrading based upon the potential risk to the public health and safety. Risk assessments were appropriately used to set the boundaries of the emergency classification levels and ensure that all EALs that trigger an emergency classification are in the same range of relative risk. In addition, the NRC staff has determined that the proposed EAL scheme is technically complete and consistent with EAL schemes implemented at similarly designed plants.

#### 3.8 Conclusion

Based on the above, the NRC staff has determined that the proposed changes meet the requirements in Appendix E to 10 CFR Part 50 and the planning standards of 10 CFR 50.47(b).

Therefore, the NRC staff concludes that the licensee's proposed EAL scheme is acceptable and provides reasonable assurance that the licensee can and will take adequate protective measures in the event of a radiological emergency. Specifically, the staff concludes that the licensee's site-specific EAL basis documents provided by letter dated March 2, 2015 (Reference 14), as supplemented by letter dated June 5, 2015 (Reference 15), are acceptable for implementation.

#### 4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Illinois, Pennsylvania, and New Jersey State officials were notified of the proposed issuance of the amendment. The State officials from Pennsylvania and New Jersey had no comments. By letter dated July 6, 2015 (ADAMS Accession No. ML15197A236), the State of Illinois official provided the following comments:

1. The RG1 and RS1 effluent release rates ( $\mu\text{Ci/s}$ ) that could result in offsite dose greater than 1000 mRem TEDE or 5000 mRem thyroid CDE.

##### **Release Rate EAL**

On June 30, 2011, Exelon received approval for implementation of EAL Changes for NEI 99-01, Revision 5. Exelon's Revision 5 implementation greatly increased the release rate thresholds for RG1 and RS1. This increase was due in part to the selection of a normal coolant source term in dose modeling calculations. IEMA's concerns with this approach were discussed at a meeting in Chicago in January, 2012. At that meeting, IEMA was told that NEI 99-01, Revision 6 would include appropriate changes to resolve this issue.

Unfortunately, Exelon's proposed implementation of NEI 99-01, Revision 6 includes no changes to RG1 and RS1. Investigations determined that draft versions of NEI 99-01, Revision 6 had initially removed RG1 and RS1, as the general consensus was that these EALs were redundant with other EAL thresholds that would be met prior to reaching the release rate levels. At the NRC's request, these EALs were put back into the Revision 6 implementation. IEMA feels that if these EALs are going to remain, then the thresholds for RG1 and RS1 should be modified to lower levels consistent with plant conditions at a Site Area Emergency or General Emergency (i.e., with calculations including source term other than normal coolant conditions).

2. The RC5, CT5 and FC5 (BWR) and RC3, CT3, and FC3 (PWR) values for airborne exposure levels (R/hr) in containment or drywell that would indicate fission product barrier failures.

##### **Containment/Drywell Dose Rate EAL**

The second issue is related to the EALs that use Exelon's CDAM (Core Damage Assessment Methodology). EALs RC5, FC5, and CT5 (BWR) and RC3, FC3, and CT3 (PWR) are based on a containment or drywell exposure rate (R/hr) that would indicate a fission product barrier failure. A number of years ago, an error was discovered in the

CDAM program calculations. The error in CDM leads to threshold values that are too low by a factor of 5 to 50. The largest error is for Clinton Power Station. This could result in a General Emergency being declared far too early and the public being subjected to unwarranted evacuation.

Our concerns with the proposed implementation of these two EALs are for very different and opposite reasons. The release rate EAL (RG1) threshold is too high to provide a timely indicator of a General Emergency condition. The containment/drywell exposure rate EAL thresholds are too low and could result in unwarranted evacuation. There is very little consistency between these two EALs that use radiation measurement values typically used in dose assessment. This license amendment that changes Exelon EALs from Revision 5 to Revision 6 of NEI 99-01 maintains the status quo as far as the two EALs are concerned. Our desire is that Exelon lower the EAL thresholds for RG1 and RS1 by using accident source terms as the technical basis for calculations instead of normal coolant. Also, with respect to the Containment/Drywell Dose Rate EALs, our desire is that Exelon correct their thresholds for core damage used in the EAL basis. However, because of the numerous overall benefits to adopting NEI 99-01, Revision 6, we do not wish to unnecessarily delay the approval of this amendment.

NRC Staff Response:

The NRC staff has reviewed the IEMA comments and has determined that the licensee has adequately developed the stated EALs (RG1 and RS1) and Fission Barrier Matrix (FBM) criteria (CT3(5), FC3(5), & RC3(5)) in accordance with the guidance provided in NEI 99-01, Revision 6, and as addressed in Appendix A to NEI 99-01, Revisions 4 and 5.

The following discussion provides additional explanation of the NRC staff's position:

There are numerous issues related to the development of an effective EAL scheme. The NRC restricts licensee modification of approved EAL scheme changes in order to ensure that the EAL scheme meets regulatory expectations. EAL schemes are evaluated as a whole more than by individual EALs or FBM criteria, i.e., there may be many EALs or FBM criteria that would be considered for a given event, and the selected EALs, therefore must be consistent with the staff's expectation for timely, and pro-active, EAL classification so that offsite response organizations (OROs) can develop effective protective action strategies for the public. Anticipatory classification is a goal, which must be balanced with the creation of potentially overly conservative classifications that could produce unnecessary evacuation or relocation.

Appendix A to NEI 99-01, Revisions 4 and 5, states in part:

*... classification of emergencies on the basis of radioactivity releases is not optimum, particularly those classifications based on radiation monitor indications. Such classifications can be deficient for several reasons, including:*

- In significant emergency events, a radioactivity release is seldom the initiating event, but rather, is the consequence of some other condition. Relying on an indication of a release may not be sufficiently anticipatory.*

- *The relationship between an effluent monitor indication caused by a release and the off-site conditions that result is a function of several parameters (e.g., meteorology, source term) which can change in value by orders of magnitude between normal and emergency conditions and from event to event. The appropriateness of these classifications is dependent on how well the parameter values assumed in pre-establishing the classification thresholds match those that are present at the time of the incident.*

*...Effluent [EALs] were included, however, to provide a basis for classifying events that cannot be readily classified on the basis of plant condition alone. Plant condition [EALs] are included to address the precursors to radioactivity release in order to ensure anticipatory action. The effluent [EALs] do not stand alone, nor do the plant condition [EALs]. The inclusion of both categories more fully addresses the potential event spectrum and compensates for potential deficiencies in either. This is a case in which the whole is greater than the sum of the parts.*

*...It should become clear how the various aspects of the NUMARC/NESP-007/NEI 99-01 effluent ICs/EALs work together to provide for reasonably accurate and timely emergency classifications. While some aspects of the radiological effluent EALs may appear to be potentially unconservative, one also needs to consider IC/EALs in other recognition categories that compensate for this condition.*

The effluent radiation initiating conditions for all four emergency classification levels (ECL) have multiple EAL thresholds including effluent radiation monitor readings and dose assessment results. Radiation monitor EAL threshold calculations need to be based on *assumed* source terms and meteorology, whereas dose assessments are based on *actual* monitor readings and meteorology. During typical accident progressions, radiation monitor readings may exceed EAL thresholds at lower ECLs and initiate the performance of dose assessments, the results of which are then used to escalate the EAL if necessary. Should the event rapidly escalate to a General Emergency, one or more plant-based EALs would result in the necessary classification. However, the use of accident source terms, and/or accident meteorology, in threshold calculations will result in low radiation monitor EAL thresholds that could be exceeded by routine radioactivity releases authorized under the ODCM. For these reasons, the use of source terms and the annual average meteorology used in the ODCM are acceptable per the guidance.

The development of EALs based upon monitor readings is intended to be reasonably anticipatory and is superseded when dose assessment results become available, typically within 15 or 30-minutes of the event depending on the averaging time of the real-time meteorological information. Using the ODCM source term for this calculation is acceptable, per the guidance, primarily because, during the initial stages of the event (prior to dose assessment results becoming available), the dominant release component would be from noble gases. Dose assessment software uses accident source terms, and real-time meteorological data once available, and is therefore the primary means of determining effluent parameter classification threshold values for RG1 (General Emergency) and RS1 (Site Area Emergency).

The NRC staff does not share the IEMA's concern with FBM criteria CT3(5), FC3(5), & RC3(5) based upon an interpretation of guidance provided in the licensee's CDAM. The licensee's



CDAM was derived, in part, from the NRC's Response Technical Manual (RTM)-96; specifically Section A, "Reactor Core Damage Assessment." This section provides information related to assessing core damage, and part of this information consists of several graphs (Figures A-5 through A-12 specifically). The y-axis has been interpreted by the licensee to be a logarithmic-based scale, which is consistent with the industry interpretation as well as staff understanding. Based upon this, the CDM values appear to be consistent with NRC Guidance and are not overly conservative.

## 5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (79 FR 55511; September 16, 2014). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

## 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 amendment will not be inimical to the common defense and security or to the health and safety of the public.

## 7.0 REFERENCES

1. Generic Letter 79-50 dated October 10, 1979 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML031320278).
2. U.S. Nuclear Regulatory Commission and Federal Emergency Management Agency, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," NUREG-0654/FEMA-REP-1, Revision 1, November 1980 (ADAMS Accession No. ML040420012).
3. Nuclear Management and Resources Council/National Environmental Studies Project (NUMARC/NESP) – 007, Revision 2, "Methodology for Development of Emergency Action Levels," January 1992 (ADAMS Accession No. ML041120174).
4. NEI 99-01, Revision 4, "Methodology for Development of Emergency Action Levels," January 2003 (ADAMS Accession No. ML041470143).



5. NEI 99-01, Revision 5, "Methodology for Development of Emergency Action Levels," February 2008 (ADAMS Accession No. ML080450149).
6. NEI 99-01, Revision 6, "Development of Emergency Action Levels for Non-Passive Reactors," November 2012 (ADAMS Accession No. ML13091A209 [package]).
7. Thaggard, M., U.S. Nuclear Regulatory Commission, Letter to Ms. Perkins-Grew, Nuclear Energy Institute, "U.S. Nuclear Regulatory Commission Review and Endorsement of NEI-99-01, Revision 6, dated November, 2012," March 28, 2013 (ADAMS Accession No. ML12346A463).
8. U.S. Nuclear Regulatory Commission, "Emergency Planning and Preparedness for Nuclear Power Reactors," Regulatory Guide 1.101, Revision 2, October 1981 (ADAMS Accession No. ML090440294), Revision 3, August 1992 (ADAMS Accession No. ML003740302), and Revision 4, July 2003 (ADAMS Accession No. ML032020276).
9. Miller, C. G., U.S. Nuclear Regulatory Commission, Letter to Alan Nelson, Nuclear Energy Institute, "U.S. Nuclear Regulatory Commission Review and Endorsement of NEI-99-01, Revision 5, dated February 2008," February 22, 2008 (ADAMS Accession No. ML080430535).
10. U.S. Nuclear Regulatory Commission, Regulatory Issue Summary 2003-18, with Supplements 1 and 2, "Use of NEI-99-01, 'Methodology for Development of Emergency Action Levels,' Revision 4, dated January 2003," October 8, 2003 (ADAMS Accession Nos. ML032580518, ML041550395, and ML051450482).
11. NRC Bulletin 2005-02, "Emergency Preparedness and Response Actions for Security-Based Events," July 18, 2005 (ADAMS Accession No. ML051740058).
12. NRC Regulatory Issue Summary 2006-12, "Endorsement of Nuclear Energy Institute Guidance 'Enhancements to Emergency Preparedness Programs for Hostile Action,'" July 19, 2006 (ADAMS Accession No. ML072670421).
13. Letter from Exelon to U.S. Nuclear Regulatory Commission, "License Amendment Request to Adopt Emergency Action Level Schemes Pursuant to NEI 99-01, Revision 6, 'Development of Emergency Action Levels for Non-Passive Reactors'," May 30, 2014 (ADAMS Accession No. ML14164A053 [package]).
14. Letter from Exelon to U.S. Nuclear Regulatory Commission, "Response to Request for Additional Information, License Amendment Request to Adopt Emergency Action Level Schemes Pursuant to NEI 99-01, Revision 6, 'Development of Emergency Action Levels for Non-Passive Reactors'," March 2, 2015 (ADAMS Accession No. ML15071A122 [package]).
15. Letter from Exelon to U.S. Nuclear Regulatory Commission, "Response to Request for Additional Information, License Amendment Request to Adopt Emergency Action Level

Schemes Pursuant to NEI 99-01, Revision 6, 'Development of Emergency Action Levels for Non-Passive Reactors,'" June 5, 2015 (ADAMS Accession No. ML15159B025 [package]).

Principal Contributor: Don Johnson, NSIR/DPR/ORLOB

Date of issuance: July 28, 2015.

Letter to B. Hanson from B. Purnell dated July 28, 2015

SUBJECT: EXELON FLEET AMENDMENT FOR EMERGENCY ACTION LEVEL SCHEMES

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B. Hanson

- 3 -

A copy of the Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,

/RA/

Blake Purnell, Project Manager  
Plant Licensing III-2 and  
Planning and Analysis Branch  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. STN 50-456, STN 50-457, and 72-73;  
STN 50-454, STN 50-455, and 72-68; 50-461;  
50-010, 50-237, 50-249, and 72-37; 50-373, 50-374, and 72-70;  
50-352, 50-353, and 72-65; 50-219 and 72-15;  
50-171, 50-277, 50-278, and 72-79; 50-254, 50-265,  
and 72-53; 50-289 and 50-320

Enclosures:

1. Amendment No. 184 to NPF-72
2. Amendment No. 184 to NPF-77
3. Amendment No. 190 to NPF-37
4. Amendment No. 190 to NPF-66
5. Amendment No. 205 to NPF-62
6. Amendment No. 45 to DPR-2
7. Amendment No. 245 to DPR-19
8. Amendment No. 238 to DPR-25
9. Amendment No. 215 to NPF-11
10. Amendment No. 201 to NPF-18
11. Amendment No. 217 to NPF-39
12. Amendment No. 179 to NPF-85
13. Amendment No. 287 to DPR-16
14. Amendment No. 13 to DPR-12
15. Amendment No. 300 to DPR-44
16. Amendment No. 303 to DPR-56
17. Amendment No. 258 to DPR-29
18. Amendment No. 253 to DPR-30
19. Amendment No. 287 to DPR-50
20. Safety Evaluation

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**ADAMS Accession No. ML15141A058**

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