



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

August 21, 2017

Mr. Kelvin Henderson  
Senior Vice President, Nuclear Corporate  
Duke Energy Corporation  
526 South Church Street, EC-07H  
Charlotte, NC 28202

SUBJECT: BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2; SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1; H. B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2; AND OCONEE NUCLEAR STATION, UNITS 1, 2, AND 3 – ISSUANCE OF AMENDMENTS TO CONSOLIDATE EMERGENCY OPERATIONS FACILITIES AND ASSOCIATED EMERGENCY PLAN CHANGES (CAC NOS. MF7650, MF7651, MF7652, MF7653, MF7654, MF7655, MF7656, MF7657, MF7658, MF7659, AND MF7660)

Dear Mr. Henderson:

The U.S. Nuclear Regulatory Commission has issued the enclosed amendments:

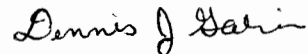
- (1) Amendment Nos. 279 and 307 to Renewed Facility Operating License (RFOL) Nos. DPR-71 and DPR-62 for the Brunswick Steam Electric Plant, Units 1 and 2 (Brunswick), respectively;
- (2) Amendment No. 160 to RFOL No. NPF-63 for the Shearon Harris Nuclear Power Plant, Unit 1 (Harris);
- (3) Amendment No. 254 to RFOL No. DPR-23 for the H. B. Robinson Steam Electric Plant Unit No. 2 (Robinson); and
- (4) Amendment Nos. 405, 407, and 406 to RFOL Nos. DPR-38, DPR-47, and DPR-55 for the Oconee Nuclear Station, Units 1, 2, and 3 (Oconee) respectively.

The amendments are in response to your application dated April 29, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16120A076), as supplemented by letters dated October 3, 2016, and January 16, 2017 (ADAMS Accession Nos. ML16277A521 and ML17017A210, respectively). The amendments (1) consolidate the Emergency Operations Facilities (EOFs) for Brunswick, Harris, and Robinson with the Duke Energy Progress, LLC (previously Duke Energy Progress, Inc.) corporate EOF in Charlotte, North Carolina; (2) decrease the frequency for a multisite drill at Oconee from once per 6 years to once per 8 years; (3) allow the multisite drill performance with sites other than Catawba Nuclear Station, McGuire Nuclear Station, or Oconee; (4) change the Brunswick, Harris, and Robinson augmentation times to be consistent with those of the sites currently supported by the Duke Energy Progress, LLC corporate EOF; and (5) decrease the frequency of the unannounced augmentation drill at Brunswick from twice per year to once per year.

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

If you have any questions, please contact me at (301) 415-6256 or [Dennis.Galvin@nrc.gov](mailto:Dennis.Galvin@nrc.gov).

Sincerely,



Dennis J. Galvin, Project Manager  
Plant Licensing Branch II-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-325, 50-324, 50-400, 50-261,  
50-369, 50-370, 50-413, 50-414,  
50-269, 50-270, 50-287, 52-018,  
and 52-019

Enclosures:

1. Amendment No. 279 to Brunswick License No. DPR-71
2. Amendment No. 307 to Brunswick License No. DPR-62
3. Amendment No. 160 to Harris License No. DPR-63
4. Amendment No. 254 to Robinson License No. DPR-23
5. Amendment No. 405 to Oconee License No. DPR-38
6. Amendment No. 407 to Oconee License No. DPR-47
7. Amendment No. 406 to Oconee License No. DPR-55
8. Safety Evaluation

cc:

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Ms. Tanya Hamilton  
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New Hill, NC 27562-0165

Mr. Robert T. Simril  
Site Vice President  
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Mr. Ernest Kapopoulos, Jr.  
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Mr. Steven D. Capps  
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Listserv



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

DUKE ENERGY PROGRESS, LLC

DOCKET NO. 50-325

BRUNSWICK STEAM ELECTRIC PLANT, UNIT 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 279  
Renewed License No. DPR-71

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment to the Brunswick Steam Electric Plant, Unit 1 (the facility), Renewed Facility Operating License No. DPR-71, filed by Duke Energy Progress, LLC (previously Duke Energy Progress, Inc.), and Duke Energy Carolinas, LLC, dated April 29, 2016, as supplemented by letters dated October 3, 2016, and January 16, 2017, 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. 279 , Renewed Facility Operating License No. DPR-71 is hereby amended to authorize relocation of the emergency operation facility and revision to the emergency plan as set forth in the licensee's application dated April 29, 2016, as supplemented by letters dated October 3, 2016, and January 16, 2017, and evaluated in the NRC staff's safety evaluation enclosed with this amendment.
3. This license amendment is effective as of the date of issuance and shall be implemented within 180 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

*Michelle G. Evans for*

Brian E. Holian, Acting Director  
Office of Nuclear Reactor Regulation

Date of Issuance: August 21, 2017



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

DUKE ENERGY PROGRESS, LLC

DOCKET NO. 50-324

BRUNSWICK STEAM ELECTRIC PLANT, UNIT 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 307  
Renewed License No. DPR-62

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment to the Brunswick Steam Electric Plant, Unit 2 (the facility), Renewed Facility Operating License No. DPR-62, filed by Duke Energy Progress, LLC (previously Duke Energy Progress, Inc.), and Duke Energy Carolinas, LLC, dated April 29, 2016, as supplemented by letters dated October 3, 2016 and January 16, 2017, 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. 307, Renewed Facility Operating License No. DPR-62 is hereby amended to authorize relocation of the emergency operation facility and revision to the emergency plan as set forth in the licensee's application dated April 29, 2016, as supplemented by letters dated October 3, 2016, and January 16, 2017, and evaluated in the NRC staff's safety evaluation enclosed with this amendment.
3. This license amendment is effective as of the date of issuance and shall be implemented within 180 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

*Michelle H Evans for*

Brian E. Holian, Acting Director  
Office of Nuclear Reactor Regulation

Date of Issuance: August 21, 2017



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

DUKE ENERGY PROGRESS, LLC

DOCKET NO. 50-400

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1

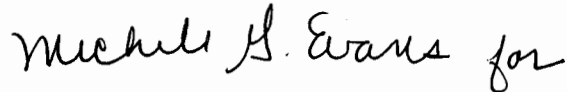
AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 160  
Renewed License No. NPF-63

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment to the Shearon Harris Nuclear Power Plant, Unit 1 (the facility), Renewed Facility Operating License No. NPF-63, filed by Duke Energy Progress, LLC (previously Duke Energy Progress, Inc.), and Duke Energy Carolinas, LLC, dated April 29, 2016, as supplemented by letters dated October 3, 2016 and January 16, 2017, 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. 160, Renewed Facility Operating License No. NPF-63 is hereby amended to authorize relocation of the emergency operation facility and revision to the emergency plan as set forth in the licensee's application dated April 29, 2016, as supplemented by letters dated October 3, 2016, and January 16, 2017, and evaluated in the NRC staff's safety evaluation enclosed with this amendment.
3. This license amendment is effective as of the date of issuance and shall be implemented within 180 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in black ink that reads "Michelle G. Evans for". The signature is written in a cursive style.

Brian E. Holian, Acting Director  
Office of Nuclear Reactor Regulation

Date of Issuance: August 21, 2017





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

DUKE ENERGY PROGRESS, LLC

DOCKET NO. 50-261

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

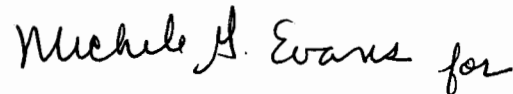
AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 254  
Renewed License No. DPR-23

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment to the H. B. Robinson Steam Electric Plant Unit No. 2 (the facility), Renewed Facility Operating License No. DPR-23, filed by Duke Energy Progress, LLC (previously Duke Energy Progress, Inc.), and Duke Energy Carolinas, LLC, dated April 29, 2016, as supplemented by letters dated October 3, 2016, and January 16, 2017, 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. 254 , Renewed Facility Operating License No. DPR-23 is hereby amended to authorize relocation of the emergency operation facility and revision to the emergency plan as set forth in the licensee's application dated April 29, 2016, as supplemented by letters dated October 3, 2016, and January 16, 2017, and evaluated in the NRC staff's safety evaluation enclosed with this amendment.
3. This license amendment is effective as of the date of issuance and shall be implemented within 180 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Brian E. Holian, Acting Director  
Office of Nuclear Reactor Regulation

Date of Issuance: August 21, 2017



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

DUKE ENERGY CAROLINAS, LLC

DOCKET NO. 50-269

OCONEE NUCLEAR STATION, UNIT 1

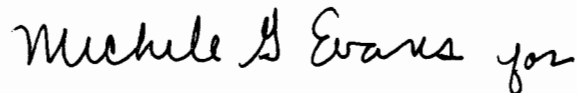
AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 405  
Renewed License No. DPR-38

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment to the Oconee Nuclear Station, Unit 1 (the facility), Renewed Facility Operating License No. DPR-38, by filed by Duke Energy Progress, LLC (previously Duke Energy Progress, Inc.), and Duke Energy Carolinas, LLC, dated April 29, 2016, as supplemented by letters dated October 3, 2016, and January 16, 2017, 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 set forth in 10 CFR Chapter I;
  - 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. 405 , Renewed Facility Operating License No. DPR-38 is hereby amended to authorize revision to the emergency plan as set forth in the licensee's application dated April 29, 2016, as supplemented by letters dated October 3, 2016, and January 16, 2017, and evaluated in the NRC staff's safety evaluation enclosed with this amendment.
3. This license amendment is effective as of the date of issuance and shall be implemented within 180 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Brian E. Holian, Acting Director  
Office of Nuclear Reactor Regulation

Date of Issuance: August 21, 2017



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

DUKE ENERGY CAROLINAS, LLC

DOCKET NO. 50-270

OCONEE NUCLEAR STATION, UNIT 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 407  
Renewed License No. DPR-47

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment to the Oconee Nuclear Station, Unit 2 (the facility), Renewed Facility Operating License No. DPR-47, filed by Duke Energy Progress, LLC (previously Duke Energy Progress, Inc.), and Duke Energy Carolinas, LLC, dated April 29, 2016, as supplemented by letters dated October 3, 2016, and January 16, 2017, 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 set forth in 10 CFR Chapter I;
  - 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.407 , Renewed Facility Operating License No. DPR-47 is hereby amended to authorize revision to the emergency as set forth in the licensee's application dated April 29, 2016, as supplemented by letters dated October 3, 2016, and January 16, 2017, and evaluated in the NRC staff's safety evaluation enclosed with this amendment.
3. This license amendment is effective as of the date of issuance and shall be implemented within 180 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

*Michelle H. Evans for*

Brian E. Holian, Acting Director  
Office of Nuclear Reactor Regulation

Date of Issuance: August 21, 2017



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

DUKE ENERGY CAROLINAS, LLC

DOCKET NO. 50-287

OCONEE NUCLEAR STATION, UNIT 3

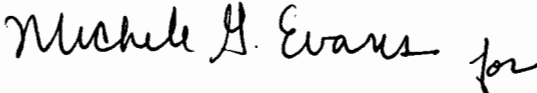
AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 406  
Renewed License No. DPR-55

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by to the Oconee Nuclear Station, Unit 3 (the facility), Renewed Facility Operating License No. DPR-55, filed by Duke Energy Progress, LLC (previously Duke Energy Progress, Inc.), and Duke Energy Carolinas, LLC, dated April 29, 2016, as supplemented by letters dated October 3, 2016, and January 16, 2017, 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 set forth in 10 CFR Chapter I;
  - 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. 406 , Renewed Facility Operating License No. DPR-55 is hereby amended to authorize revision to the emergency as set forth in the licensee's application dated April 29, 2016, as supplemented by letters dated October 3, 2016, and January 16, 2017, and evaluated in the NRC staff's safety evaluation enclosed with this amendment.
3. This license amendment is effective as of the date of issuance and shall be implemented within 180 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Brian E. Holian, Acting Director  
Office of Nuclear Reactor Regulation

Date of Issuance: August 21, 2017





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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO

AMENDMENT NOS. 279 AND 307 TO RENEWED FACILITY OPERATING LICENSE

NOS DPR-71 AND DPR-62

AMENDMENT NO. 160 TO RENEWED FACILITY OPERATING LICENSE NO. NPF-63

AMENDMENT NO. 254 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-23

AND AMENDMENT NOS. 405, 407, AND 406 TO RENEWED FACILITY OPERATING

LICENSE NOS. DPR-38, DPR-47, AND DPR-55

DUKE ENERGY PROGRESS, LLC

DUKE ENERGY CAROLINAS, LLC

BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2

DOCKET NOS. 50-325 AND 50-324

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1

DOCKET NO. 50-400

H. B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2

DOCKET NO. 50-261

OCONEE NUCLEAR STATION, UNITS 1, 2, AND 3

DOCKET NOS. 50-269, 50-270, AND 50-287

1.0 INTRODUCTION

By letter dated April 29, 2016 (Reference 1), as supplemented by letters dated October 3, 2016, and January 16, 2017 (References 2 and 3, respectively), Duke Energy Progress, LLC (previously operating as Duke Energy Progress, Inc.), and Duke Energy Carolinas, LLC (both referred to hereafter as "Duke Energy"), submitted to the U.S. Nuclear Regulatory Commission (NRC) a license amendment request (LAR) to modify the Emergency Plans for the Brunswick Steam Electric Plant, Units 1 and 2 (Brunswick); Shearon Harris Nuclear Power Plant, Unit 1 (Harris); H. B. Robinson Steam Electric Plant Unit No. 2 (Robinson); and Oconee Nuclear

Station, Units 1, 2, and 3 (Oconee). The proposed changes would revise the Brunswick, Harris, Robinson, and Oconee Emergency Plans to:

- Consolidate the Emergency Operations Facilities (EOFs) for the Brunswick, Harris, and Robinson sites with the existing Duke Energy Corporate EOF (hereafter referred to as the “Duke Charlotte EOF”);
- Change the emergency response organization (ERO) augmentation times for Brunswick, Harris, and Robinson to be consistent with that of the sites currently supported by the Duke Charlotte EOF;
- Decrease the frequency of the unannounced ERO augmentation drill at Brunswick from twice per year to once per year;
- Reduce the frequency of a multisite drill at Oconee to align with the 8-year exercise cycle in current regulations; and
- Remove the plan commitment for Oconee having to be included in all of the Duke Energy multisite drills.

The consolidation of the EOFs for the Brunswick, Harris, and Robinson sites with the existing Duke Charlotte EOF required prior Commission approval. The Duke Charlotte EOF is currently located in the Duke Energy Center at 526 South Church Street in Charlotte, North Carolina, and already serves as the consolidated EOF for the Catawba Nuclear Station (Catawba), McGuire Nuclear Station (McGuire), Oconee, and the William States Lee III Nuclear Station (Lee).<sup>1</sup> The existing EOFs for Brunswick and Robinson are onsite, and the existing EOF for Harris is in the Harris Energy and Environmental Center, approximately 2 miles (straight-line distance) from the Harris site. The Brunswick, Harris, and Robinson sites are 184 miles, 110 miles, and 69 miles (straight-line distance), respectively, from the Duke Charlotte EOF.

Per paragraph IV.E.8.b of Appendix E, “Emergency Planning and Preparedness for Production and Utilization Facilities,” to Title 10 of the *Code of Federal Regulations* Part 50, “Domestic Licensing of Production and Utilization Facilities,” prior Commission approval is required for an EOF located more than 25 miles from a nuclear power reactor site. As such, the NRC staff requested Commission approval in SECY-17-0050, “Duke Energy Proposal to Further Consolidate Duke Corporate Emergency Operations Facility,” dated April 14, 2017 (Reference 4).

The Commission approved the consolidation of the EOFs for the Brunswick, Harris, and Robinson sites with the existing Duke Charlotte EOF in the Staff Requirements Memorandum (SRM) to SECY-17-0050, dated May 17, 2017 (Reference 5).

On July 5, 2016, the NRC staff published a proposed no significant hazards consideration (NSHC) determination in the *Federal Register* (81 FR 43650) for the proposed amendments. Subsequently, by letters dated October 3, 2016, and January 16, 2017, the licensee provided additional information that expanded the scope of the amendment request as originally noticed in the *Federal Register*. Accordingly, the NRC published a second proposed NSHC determination in the *Federal Register* on February 14, 2017 (82 FR 10594), which superseded the original notice in its entirety.

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<sup>1</sup> The approval of the Duke Charlotte EOF for Lee is included in the combined licenses dated December 19, 2016.

## 2.0 REGULATORY EVALUATION

The NRC staff considered the following regulatory requirements and guidance during its review of the proposed changes.

### Regulations

Section 50.47, "Emergency plans," of 10 CFR sets forth emergency plan requirements for nuclear power plant facilities. The regulation in 10 CFR 50.47(b) establishes the standards that the onsite and offsite emergency response plans must meet for NRC staff to make a finding that there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency.

- 10 CFR 50.47(b)(1) requires that primary responsibilities of emergency response for the licensee, State, local, and supporting organizations have been assigned and established, and each organization has staff to respond and to augment its initial response on a continuous basis.
- 10 CFR 50.47(b)(2) requires, in part, that "...timely augmentation of response capabilities is available...."
- 10 CFR 50.47(b)(3) requires that arrangements to accommodate State and local staff at the licensee's EOF have been made.
- 10 CFR 50.47(b)(8) requires that adequate emergency facilities and equipment to support the emergency response are provided and maintained.
- 10 CFR 50.47(b)(14) states, in part, "...periodic drills are (will be) conducted to develop and maintain key skills...."

Paragraph IV of Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities," to 10 CFR Part 50 includes requirements for the content of emergency plans.

- Paragraph IV.C.1 of Appendix E to 10 CFR Part 50, states, in part, "The entire spectrum of emergency conditions that involve the alerting or activating of progressively larger segments of the total emergency organization shall be described. The communication steps to be taken to alert or activate emergency personnel under each class of emergency shall be described."
- Paragraph IV.E.8.a(i) of Appendix E to 10 CFR Part 50 specifies the requirement for a licensee onsite technical support center and an EOF from which effective direction can be given and effective control can be exercised during an emergency.
- Paragraph IV.E.8.b of Appendix E to 10 CFR Part 50 specifies that a licensee must request prior Commission approval if desiring to locate an EOF greater than 25 miles from a nuclear power reactor site and outlines provisions that must be met for the facility.

- Paragraph IV.E.8.c of Appendix E to 10 CFR Part 50 specifies requirements for data acquisition and display, technical analysis of event conditions, and support response for multiple reactor sites.
- Paragraph IV.F.2.b of Appendix E to 10 CFR Part 50 states, in part, "...In addition, the licensee shall take actions necessary to ensure that adequate emergency response capabilities are maintained during the interval between biennial exercises by conducting drills, including at least one drill involving a combination of some of the principal functional areas of the licensee's onsite emergency response capabilities."
- Paragraph IV.F.2.j of Appendix E to 10 CFR Part 50 discusses requirements based on an "eight calendar year exercise cycle."

### Regulatory Guidance

- Revision 1 of NUREG-0654/FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," published November 1980 (Reference 6), provides specific acceptance criteria that the NRC has determined is an acceptable means of complying with the standards in 10 CFR 50.47.
- NUREG-0696, "Functional Criteria for Emergency Response Facilities," published February 1981 (Reference 7), describes the facilities and systems to be used by nuclear power plant licensees to improve responses to emergencies.
- Supplement No. 1 to NUREG-0737, "Clarification of TMI [Three Mile Island] Action Plan Requirements," reprinted February 1989 (original document dated June 15, 1982) (Reference 8), describes post-TMI requirements for emergency response capability that have been approved for implementation.
- Office of Nuclear Security and Incident Response (NSIR)/Division of Preparedness and Response (DPR) Interim Staff Guidance (ISG) document NSIR/DPR-ISG-01, Rev. 0, "Emergency Planning for Nuclear Power Plants," November 2011 (Reference 9), provides updated guidance for addressing emergency planning requirements for nuclear power plants based on changes to emergency preparedness regulations in 10 CFR 50.47 and Appendix E to 10 CFR Part 50, which were published in the *Federal Register* on November 23, 2011 (76 FR 72559-72560).

## 3.0 TECHNICAL EVALUATION

### 3.1 Background

The NRC has incrementally approved the use of the Duke Charlotte EOF for Catawba, McGuire, Oconee, and Lee. In a letter dated April 14, 1983 (Reference 10), the licensee informed the NRC that the EOFs for the Catawba and McGuire sites would be co-located at the Duke Charlotte EOF in Charlotte, North Carolina. The NRC staff reviewed this submittal, and in a letter dated August 18, 1983 (Reference 11), found that the proposed common Duke Charlotte EOF met the guidelines of Table 1, "Emergency Operations Facility," in Supplement

No. 1 to NUREG-0737, (Reference 8), and therefore, was acceptable.<sup>2</sup> By letter dated January 10, 2006 (Reference 12), the NRC staff subsequently approved the consolidation of the Oconee EOF into the Duke Charlotte EOF based on the Commission's approval documented in the SRM to SECY-05-0172, "Duke Power Company's Request to Incorporate the Oconee Emergency Operations Facility into the EOF Shared by Catawba and McGuire Nuclear Stations," dated November 2, 2005 (Reference 13). With the issuance of Commission Memorandum and Order CLI-16-19, dated December 15, 2016 (Reference 14), and the issuance of the combined license, dated December 19, 2016 (Reference 15), the Duke Charlotte EOF was approved to also serve as the EOF for Lee. In the LAR (Reference 1), as supplemented by letters dated October 3, 2016, and January 16, 2017 (References 2 and 3, respectively), Duke Energy proposed to consolidate the EOFs for the Brunswick, Harris, and Robinson sites into the existing Duke Charlotte EOF.

In addition, Duke Energy is requesting the following changes to the Emergency Plans for the Brunswick, Harris, Robinson, and Oconee sites:

- Change ERO augmentation times to be consistent with that of the sites currently supported by the Duke Charlotte EOF. All 30- to 45-minute (from notification) responders will change to 45 minutes (from event declaration). All 60- to 75-minute (from notification) responders will change to 75 minutes (from event declaration);
- Change to decrease the frequency of the unannounced ERO augmentation drill at Brunswick from twice per year to once per year;
- Change to reduce the frequency of a multisite drill at Oconee from once every 6 years to once every 8 years to align with the exercise cycle in current regulations; and
- Remove the plan commitment for Oconee having to be included in all of the Duke Energy multisite drills.

The proposed changes to the Brunswick, Harris, and Robinson Emergency Plans are identified in Enclosures 3, 5, and 7, respectively, of the LAR (Reference 1). The justification of the changes to the Brunswick, Harris, and Robinson Emergency Plans are provided in Enclosures 4, 6, and 8, respectively, of the LAR. The proposed changes to the Oconee Emergency Plan are identified in Enclosure 2 of the licensee's January 16, 2017, submittal (Reference 3).

## 3.2 NRC Staff Evaluation

### 3.2.1 Duke Charlotte Emergency Response Facility Consolidation

This section reflects the NRC staff's evaluation of Duke Energy's proposal to consolidate the EOFs for the Brunswick, Harris, and Robinson sites into the existing Duke Charlotte EOF in the LAR (Reference 1), as supplemented by letters dated October 3, 2016, and January 16, 2017 (References 2 and 3, respectively).

The purpose of an EOF is to provide a facility from which the licensee can manage the overall licensee emergency response during an event, including coordinating radiological and environmental assessments, determining protective actions, and communicating and

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<sup>2</sup> At the time of the 1983 request, Commission-level review and approval was not required.

coordinating with Federal, State, and local agencies. This facility complements other licensee emergency response facilities such as the Technical Support Center (TSC), which is located onsite at each respective site. The TSC is a facility from which the licensee staff provides plant management and technical support to plant operations personnel during emergency conditions, relieves the reactor operators of peripheral duties and communications not directly related to reactor system manipulations, prevents congestion in the control room, and performs EOF functions until the EOF is staffed and ready to respond. EOF functions can be fulfilled by each respective site's TSC under emergency response conditions, as needed.

The NRC staff considered relevant regulations and guidance documents in its evaluation of Duke Energy's request to further consolidate the Duke Charlotte EOF. In particular, under 10 CFR 50.47(b)(8), an acceptable emergency plan must meet the following standard: "Adequate emergency facilities and equipment to support the emergency response are provided and maintained." In addition, paragraph IV.E.8.c of Appendix E to 10 CFR Part 50 establishes the following minimum capabilities for an applicant/licensee EOF, which were added in a 2011 final rule, "Enhancements to Emergency Preparedness Regulations" (76 FR 72599-72560; November 23, 2011):

- (1) The capability for obtaining and displaying plant data and radiological information for each reactor at a nuclear power reactor site and for each nuclear power reactor site that the facility serves;
- (2) The capability to analyze plant technical information and provide technical briefings on event conditions and prognosis to licensee and offsite response organizations for each reactor at a nuclear power reactor site and for each nuclear power reactor site that the facility serves; and
- (3) The capability to support response to events occurring simultaneously at more than one nuclear power reactor site if the emergency operations facility serves more than one site.

In accordance with paragraph IV.E.8.c of Appendix E to 10 CFR Part 50, a licensee with an EOF located more than 25 miles from a nuclear power reactor site must also have an additional facility closer than 25 miles to the nuclear power reactor site so that NRC and offsite responders can interact face-to-face with emergency response personnel entering and leaving the nuclear power reactor site. This additional near-site facility must meet the following requirements in section IV.E.8.b. of Appendix E to Part 50, which were added in the 2011 rulemaking:

- (1) Space for members of an NRC site team and Federal, State, and local responders;
- (2) Additional space for conducting briefings with emergency response personnel;
- (3) Communication with other licensee and offsite emergency response facilities;
- (4) Access to plant data and radiological information; and
- (5) Access to copying equipment and office supplies.

The NRC's issuance of the guidance document, NUREG-0696 (Reference 7), in 1981, established criteria for the NRC staff to use in evaluating whether an applicant/licensee met the then-existing requirements of paragraph IV.E.8 of Appendix E to 10 CFR Part 50 and General Design Criteria 19, "Control room," in Appendix A to 10 CFR Part 50.

Section 4, "Emergency Operations Facility," of NUREG-0696 provided compliance criteria for the EOF in the following nine categories:

- Section 4.1 Functions;
- Section 4.2 Location, Structure, and Habitability;
- Section 4.3 Staffing and Training;
- Section 4.4 Size;
- Section 4.5 Radiological Monitoring;
- Section 4.6 Communications;
- Section 4.7 Instrumentation, Data System Equipment, and Power Supplies;
- Section 4.8 Technical Data and Data System; and
- Section 4.9 Records Availability and Management.

The NRC amended its EOF regulations as part of the 2011 final rule, which was developed in part in response to Commission direction in the SRM to SECY-04-0236, dated February 23, 2005 (Reference 16). The SRM stated, in part:

The staff should consider revising 10 CFR Part 50 to make the requirements for EOFs more performance-based to allow other multi-plant licensees to consolidate their EOFs, if those licensees can demonstrate their emergency response strategies will adequately cope with an emergency at any of the associated plants.

While retaining the nine categories of the EOF criteria in NUREG-0696 (Reference 7), Section 4, the guidelines in several categories were subsequently supplemented, as part of the 2011 final rule, with the guidelines in NSIR/DPR-ISG-01 (Reference 9), Section VI.I, "Emergency Operations Facility – Performance-Based Approach." Enclosure 1 of the LAR (Reference 1) evaluated the proposed consolidated Duke Charlotte EOF using these nine categories. As such, the NRC staff evaluated the proposed consolidated Duke Charlotte EOF using the nine categories in Section 4 of NUREG-0696, as supplemented by Section VI.I of NSIR/DPR-ISG-01.

a. Functions

In Enclosure 1, Section 3.1 of the LAR (Reference 1), Duke Energy discusses how the Duke Charlotte EOF gives the Duke Energy licensees the facilities and capability to: (1) manage the overall licensee response effort; (2) coordinate radiological and environmental assessments; (3) make determinations of recommended public protective actions; (4) perform offsite notifications to State and local agencies; (5) coordinate event, plant, and response information provided to public information staff for dissemination to the media and the public; (6) staff and activate the facility within timeframes and at emergency classification levels defined in the licensees' emergency plans; (7) coordinate emergency response activities with Federal, State, and local agencies; (8) locate NRC and offsite agency staff closer to affected sites because the EOF is greater than 25 miles from the sites; (9) obtain and display key plant data and radiological information for each plant the EOF serves; (10) analyze plant technical information and provide technical briefings on event conditions and prognosis to licensee staff and offsite agency responders for each type of plant; and (11) effectively respond to and coordinate response efforts for events occurring simultaneously at more than one site.

Duke Energy staffs the Duke Charlotte EOF with ERO personnel from its co-located corporate office, in addition to personnel from the nearby Catawba and McGuire sites. Duke Energy

corporate personnel possess expertise in emergency preparedness, radiological engineering, safety analysis, probabilistic risk assessment, and other areas. The Duke Charlotte EOF will continue to be the primary facility from which the Duke Energy licensees will be responsible for managing the overall licensee emergency response, coordinating assessment of radiological and environmental conditions, making determinations regarding protective actions, and interfacing with offsite response. Duke Energy will keep event classification responsibility at the respective sites' TSC. If the EOF were to become unavailable during an event, the TSC for the respective site will also be capable of assuming responsibility from the EOF for notifying offsite agencies, performing dose assessment, and determining protective action recommendations.

The NRC staff has determined that the proposed addition of the Brunswick, Harris, and Robinson sites to the Duke Charlotte EOF would not impact how the Duke Charlotte EOF continues to meet the functional requirements for an EOF based on it satisfying the criteria in Section 4 of NUREG-0696 and Section VI.I of NSIR/DPR-ISG-01. The Duke Charlotte EOF will provide for the continued capability to perform functions in a manner that is comparable to the current Brunswick, Harris, and Robinson EOFs and will continue to perform the same functions for the sites it currently serves.

In addition, in its letter dated October 3, 2016, Duke Energy described that it planned to:

- Conduct a dual-site drill at the Duke Charlotte EOF on June 21, 2017, with the Brunswick (boiling-water reactor) and Oconee (pressurized-water reactor) nuclear stations. The drill at each site will include activation of the ERO and facilities, offsite notifications, dose assessment, protective action recommendations, and field monitoring team coordination. Additionally, the event at one of the two sites will affect multiple units.
- Offer the States of North Carolina and South Carolina the opportunity to participate, as appropriate, in the dual-site simultaneous drill to verify their interfaces and coordination with the Duke Charlotte EOF for the addition of new sites.
- Offer the Federal Emergency Management Agency (FEMA) and the NRC an opportunity to observe the dual-site simultaneous drill to verify continued adequacy of offsite and licensee radiological emergency preparedness (REP) plans and preparedness.

On June 21, 2017, NRC headquarters and Region II staff observed a drill at the Charlotte EOF involving simulated, concurrent events at the Oconee and Brunswick sites, with the simulated event at the Brunswick site impacting both units. The States of North Carolina and South Carolina also participated in the dual-site drill. The conduct of this dual-site drill successfully demonstrated the ability of the Duke Charlotte EOF to continue to effectively function during simultaneous events at multiple nuclear power reactor sites with different reactor technologies and to interface effectively with multiple State agencies.

b. Location, Structure, and Habitability

In accordance with the guidance in Section 4.2 of NUREG-0696 (Reference 7), as supplemented by Section VI.I of NSIR/DPR-ISG-01 (Reference 9), Enclosure 1, Section 3.2 of the LAR (Reference 1) addresses the Duke Charlotte EOF with relation to "location, structure, and habitability." The Duke Charlotte EOF is located in the Duke Energy Center at 526 South Church Street in Charlotte, North Carolina. Duke Energy asserts that the facility meets the intent of the guidance in NUREG-0696 that the building be "well-engineered for the design life of the plant," and that it should be capable of withstanding wind loads and live loads equal to, or greater than, those contained in the current North Carolina Building Code. As the facility is



greater than 10 miles from any of the nuclear power reactor sites, habitability criteria in NUREG-0696 are not applicable, and a backup EOF is not required under paragraph IV.E.8.b. of Appendix E to 10 CFR Part 50.

The facility is located in the Nuclear General Office complex, allowing for corporate support and management personnel to quickly staff the EOF with expertise from various disciplines. A consolidated EOF has been in Charlotte, North Carolina, since 1987. The facility was moved from the first to the third floor of the Duke Energy Center in October 2015 to allow for additional space and further upgrades to the facility. Some key features of the third floor upgraded facility include a larger size, more than 50 new computers, three subareas to the main EOF area featuring large electronic flat screen “knowledge walls,” glass-walled rooms surrounding the main EOF area that support major functions, workstations to accommodate a multisite event, and videoconferencing capabilities. All electrical outlets; the heating, ventilation, and air conditioning (HVAC) systems; lighting fixtures; and the wiring closet that supports both the voice and data communications in the Duke Charlotte EOF have backup power available.

Based on the foregoing, the NRC staff has determined that the proposed addition of the Brunswick, Harris, and Robinson sites to the Duke Charlotte EOF meets the location and structure criteria in Section 4 of NUREG-0696 and Section VI.I of NSIR/DPR-ISG-01.

#### *Offsite Agreement*

Planning standard 10 CFR 50.47(b)(3) requires arrangements to accommodate State and local staff at the licensee’s EOF. In Enclosure 9 of the LAR (Reference 1), Duke Energy provided signed letters of concurrence from the following respective agencies in the States of North Carolina and South Carolina, and local response organizations, indicating that they concur with the proposed consolidation of the site EOFs with the Duke Charlotte EOF:

- North Carolina Emergency Management,
- North Carolina Department of Environment and Natural Resources (Radiation and Protection Section),
- Lee County, North Carolina,
- Wake County, North Carolina,
- Brunswick County, North Carolina,
- Chatham County, North Carolina,
- Harnett County, North Carolina,
- New Hanover County, North Carolina,
- South Carolina Emergency Management Division,
- South Carolina Department of Health & Environment Control (Division of Emergency Response,
- Lee County, South Carolina,
- Darlington County, South Carolina, and
- Chesterfield County, South Carolina.

Local response agencies do not currently respond to the Brunswick, Harris, or Robinson site EOFs, and Duke Energy does not expect that to change once those sites are consolidated into the Duke Charlotte EOF.

Per the “Memorandum of Understanding Between the Department of Homeland Security/Federal Emergency Management Agency and Nuclear Regulatory Commission

Regarding Radiological Emergency Response, Planning, and Preparedness,” dated December 7, 2015 (Reference 17), FEMA has the responsibility for determining the adequacy of offsite REP plans and preparedness, and providing its findings to the NRC. By letter dated October 3, 2016 (Reference 18), FEMA indicated that it had reviewed Duke Energy’s proposal for the consolidation of EOFs and determined that there are no impediments to the responders from the States of North Carolina and South Carolina operating from the Duke Charlotte EOF and that offsite REP plans and preparedness are not negatively impacted by the change. Based on the foregoing, the NRC staff has determined that the proposed addition of the Brunswick, Harris, and Robinson sites to the Duke Charlotte EOF meets the requirements of 10 CFR 50.47(b)(3) regarding arrangements to accommodate State and local staff, as appropriate, at the licensee’s Charlotte EOF.

#### *Impact on NRC’s Incident Response*

Paragraph IV.E.8.b of Appendix E to 10 CFR Part 50 requires provisions to be made for locating NRC and offsite responders closer to the reactor site to facilitate face-to-face interaction with emergency personnel entering and leaving the site for an EOF located more than 25 miles from a nuclear reactor site.

Duke Energy states that near-site response locations will be established to meet this requirement. These locations will provide for conference areas with white boards, separate briefing/debriefing areas, telephones, ERO telephone contact lists, computers with access to the internet, necessary office supplies and photocopier access, and access to plant radiological information.

Duke Energy intends to establish response facilities at the following locations near the Brunswick, Harris, and Robinson sites, should the NRC site team or offsite agencies determine they need to relocate from the Duke Charlotte EOF to be near the affected site(s):

- Duke Energy Progress Building in Leland, North Carolina (20 miles from Brunswick),
- Harris Energy & Environmental Center in New Hill, North Carolina (2 miles from Harris), and
- Remote Emergency Response Facility in Hartsville, South Carolina (7 miles from Robinson).

Based on the foregoing, the NRC staff has determined that Duke Energy’s proposed near-site provisions meet the requirements of paragraph IV.E.8.b of Appendix E to 10 CFR Part 50.

#### c. Staffing and Training

In accordance with the guidance in Section 4.3 of NUREG-0696 (Reference 7), as supplemented by Section VI.I of NSIR/DPR-ISG-01 (Reference 9), Enclosure 1, Section 3.3 of the LAR (Reference 1) addresses the Duke Charlotte EOF in relation to “Staffing and Training.” Duke Energy intends to provide site-specific training on the Brunswick, Harris, and Robinson sites to the ERO staff prior to consolidation of these sites into the Duke Charlotte EOF, including instruction on the reactor technologies, differences in the radiological and environmental characteristics of those sites, and determination of their associated protective action recommendations. In accordance with the existing emergency plans for the Brunswick, Harris, and Robinson sites, ERO personnel staffing the Duke Charlotte EOF will receive periodic training and will participate in activation drills to maintain proficiency in emergency response responsibilities.

In support of the NRC's reactor oversight process, Nuclear Energy Institute (NEI) document NEI 99-02, Revision 7, "Regulatory Assessment Performance Indicator Guideline," dated August 31, 2013 (Reference 19), includes the ERO performance indicator (PI) under the emergency preparedness cornerstone, which allows the licensee and NRC staff to verify the licensee's ability to meet the performance-based consolidated EOF criteria and to adequately cope with an emergency at any of the licensee's sites. The PI tracks the participation of ERO members assigned to fill key positions in performance enhancing experiences and ensures that the risk-significant aspects of classification, notification, and protective action recommendation development are evaluated and included in the PI process. The PI also ensures that utilities with common EOFs where personnel are assigned to the key positions that support multiple nuclear sites are monitored to ensure that each receives a "meaningful opportunity to gain proficiency."

Based on the foregoing, the NRC staff has determined that the proposed addition of the Brunswick, Harris, and Robinson sites to the Duke Charlotte EOF meets the staffing and training criteria in Section 4 of NUREG-0696 and Section VI.I of NSIR/DPR-ISG-01.

d. Size

In accordance with the guidance in Section 4.4 of NUREG-0696 (Reference 7), as supplemented by Section VI.I of NSIR/DPR-ISG-01 (Reference 9), Enclosure 1, Section 3.4 of the LAR (Reference 1) addresses the Duke Charlotte EOF in relation to "Size." The Duke Charlotte EOF consists of approximately 7,658 square feet of working space. Duke Charlotte EOF staffing will include approximately 50 personnel for a single-site event, including NRC and State responders. Based on the guidance in NUREG-0696, the facility can accommodate approximately 100 personnel.

Paragraph IV.E.8.c(3) of Appendix E to 10 CFR Part 50 requires the capability to support response to events occurring simultaneously at more than one nuclear power reactor site if the EOF serves more than one site. However, neither NRC requirements nor guidance establish the minimum number of simultaneous events at multiple sites that a consolidated EOF needs to support. Recognizing that there is a possibility for simultaneous events to occur at the sites the Duke Charlotte EOF serves, Duke Energy discusses, in its submittal, that the Duke Charlotte EOF will be able to support simultaneous events at two of the sites it serves. Additionally, Duke Energy indicated that the Duke Charlotte EOF was designed with physical capabilities (e.g., space, equipment) to support simultaneous responses for up to three sites and has the capability to expand staffing, command and control, and coordination functions.

The main EOF area contains three segregated areas, each with its own equipment (e.g., computers, phones, wall displays) to support the EOF functions for each affected site. The rooms surrounding the main EOF area with major support functions (e.g., offsite communications, radiation assessment, accident assessment, offsite monitoring) also include separate space and equipment for up to three sites. Finally, as stated in Enclosure 1, Section 3.1.1 of the LAR (Reference 1), the respective site's TSCs will serve as a backup to the EOF, if required.

As part of its submittal, Duke Energy reviewed historical information on event declarations for an Alert classification and above at the Catawba, McGuire, Oconee, Brunswick, Harris, and Robinson sites, going back to 1980, to determine the occurrence of simultaneous declared emergencies at any of those six sites. Based on the best available information, Duke Energy

found that the two closest events were 18 days and 28 days apart and had separate initiating events. These included an Alert at Brunswick on September 21, 1989, and an Alert at Harris on October 9, 1989. The next closest events included an Alert at Brunswick on February 7, 2016, followed by an Alert at Oconee on March 6, 2016. While capable of supporting simultaneous events at multiple sites, this review of historical data indicates that the operating sites using the Duke Charlotte EOF have not had a need to activate the EOF for simultaneous events during their operation.

As part of its evaluation, the NRC staff physically walked down the facility on August 2-3, 2016, to verify the physical size, layout, and capabilities of the Duke Charlotte EOF to effectively support simultaneous events at multiple nuclear power reactor sites.

Based on the foregoing, the NRC staff has determined that the proposed addition of the Brunswick, Harris, and Robinson sites to the Duke Charlotte EOF meets the requirements of paragraph IV.E.8.c(3) of Appendix E to 10 CFR Part 50 and the size criteria in Section 4 of NUREG-0696 and Section VI.I of NSIR/DPR-ISG-01.

e. Radiological Monitoring

In accordance with the guidance in Section 4.5 of NUREG-0696 (Reference 7), as supplemented by Section VI.I of NSIR/DPR-ISG-01 (Reference 9), Enclosure 1, Section 3.5 of the LAR (Reference 1) addresses the Duke Charlotte EOF in relation to "Radiological Monitoring." The guidance in NUREG-0696 specifies that to ensure adequate radiological protection of EOF personnel, radiation monitoring systems should be provided in the EOF if located within 10 miles from a nuclear power reactor site. As the Duke Charlotte EOF is beyond 10 miles from any of the nuclear power reactor sites that it serves, the NRC staff has determined that radiological monitoring capabilities for EOF personnel, as described in NUREG-0696, are not applicable.

f. Communications

In accordance with the guidance in Section 4.6 of NUREG-0696 (Reference 7), as supplemented by Section VI.I of NSIR/DPR-ISG-01 (Reference 9), Enclosure 1, Section 3.6 of the LAR (Reference 1) addresses the Duke Charlotte EOF in relation to "Communications." The Duke Charlotte EOF has sufficient internal and external telecommunications capabilities to support EOF functions for simultaneous events involving multiple sites. The Duke Charlotte EOF will continue to provide for reliable voice communication to the respective station TSCs and control rooms, the NRC and other Federal agencies as appropriate, the State and local emergency operations centers, and the respective site Joint Information Centers. The current communications system at the Duke Charlotte EOF includes the Duke Telephone System (with access to the internal phone system, the public switch network, and long distance); the Duke Emergency Management Network (DEMNET); a radio system for communication with radiological field monitoring teams at their respective sites; the NRC Emergency Telecommunications System telephones; State of North Carolina satellite radio/telephone; and facsimile capabilities. Additionally, Duke Energy uses two service providers to support independent connections to the internet.

DEMNET serves as the primary means of communication regarding event classification, meteorological information, and protective action recommendations to State and local agencies; and includes both a primary mode (internet) and secondary mode (satellite) as paths for communication. Existing commercial telephone service and fax serve as the designated backup

communications methods in the event of a DEMNET failure. Additionally, Duke Energy's communications systems include provisions for backup power.

Based on the foregoing, the NRC staff has determined that the proposed addition of the Brunswick, Harris, and Robinson sites to the Duke Charlotte EOF meets the communications criteria in Section 4 of NUREG-0696 and Section VI.I of NSIR/DPR-ISG-01.

g. Instrumentation, Data System Equipment, and Power Supplies

In accordance with the guidance in Section 4.7 of NUREG-0696 (Reference 7), as supplemented by Section VI.I of NSIR/DPR-ISG-01 (Reference 9), Enclosure 1, Section 3.7 of the LAR (Reference 1) addresses the Duke Charlotte EOF in relation to "Instrumentation, Data System Equipment, and Power Supplies." Duke Energy is installing a new plant communication voice and data network under the 10 CFR 50.54(q) process to provide secure access to plant data for Brunswick, Harris, and Robinson. This network will provide access at the Duke Charlotte EOF to the same data points as those available to the Control Room, TSC, and Operational Support Center (OSC), including the Safety Parameter Display System (SPDS). The local area network equipment, all electrical outlets, lighting fixtures, and HVAC loads in the Duke Charlotte EOF and core network equipment in the Energy Center have backup power.

Based on the foregoing, the NRC staff has determined that the proposed addition of the Brunswick, Harris, and Robinson sites to the Duke Charlotte EOF meets the instrumentation, data system equipment, and power supplies criteria in Section 4 of NUREG-0696 and Section VI.I of NSIR/DPR-ISG-01.

h. Technical Data and Data Systems

In accordance with the guidance in Section 4.8 of NUREG-0696 (Reference 7), as supplemented by Section VI.I of NSIR/DPR-ISG-01 (Reference 9), Enclosure 1, Section 3.8 of the LAR (Reference 1) addresses the Duke Charlotte EOF in relation to "Technical Data and Data Systems." The Duke Charlotte EOF will be able to receive, store, process, and display information needed to perform assessments of actual and potential offsite consequences of an emergency at Brunswick, Harris, and Robinson. The Duke Charlotte EOF will have access to the same data points that are available to the operators in each respective site's control room and emergency responders in the TSC and OSC, including the SPDS data points. All Duke Energy sites use the Unified Radiological Assessment System for Consequence Analysis Interface for offsite dose assessment.

Based on the foregoing, the NRC staff has determined that the proposed addition of the Brunswick, Harris, and Robinson sites to the Duke Charlotte EOF meets the technical data and data systems criteria in Section 4 of NUREG-0696 and Section VI.I of NSIR/DPR-ISG-01.

i. Records Availability and Management

In accordance with the guidance in Section 4.9 of NUREG-0696 (Reference 7), as supplemented by Section VI.I of NSIR/DPR-ISG-01 (Reference 9), Enclosure 1, Section 3.9 of the LAR (Reference 1) addresses the Duke Charlotte EOF in relation to "Records Availability and Management." Hard copies of important reference materials for Brunswick, Harris, and Robinson will be maintained at the Duke Charlotte EOF. Also, station design documentation, plant drawings, procedures, and other documentation will be available electronically through a local area network connection.

Based on the foregoing, the NRC staff has determined that the proposed addition of the Brunswick, Harris, and Robinson sites to the Duke Charlotte EOF meets records availability and management criteria in Section 4 of NUREG-0696 and Section VI.I of NSIR/DPR-ISG-01.

As previously noted, the staff provided SECY-17-0050, "Duke Energy Proposal to Further Consolidate Duke Corporate Emergency Operations Facility" (Reference 4), to the Commission on April 14, 2017, recommending approval to further consolidate the Brunswick, Harris, and Robinson site EOFs into the existing Duke Charlotte EOF. The Commission subsequently approved the staff's recommendation in SRM SECY-17-0050, "Duke Energy Proposal to Further Consolidate Duke Corporate Emergency Operations Facility," dated May 17, 2017 (Reference 5). In addition, the NRC staff has determined that the proposed addition of the Brunswick, Harris, and Robinson sites to the Duke Charlotte EOF meets records availability and management criteria in Section 4 of NUREG-0696 and Section VI.I of NSIR/DPR-ISG-01. Accordingly, the staff finds that the consolidated Duke Charlotte EOF meets the requirements of 10 CFR 47(b) and paragraph IV.E.8 of Appendix E to 10 CFR Part 50 and is, therefore, acceptable.

### 3.2.2 Emergency Response Organization Augmentation Time

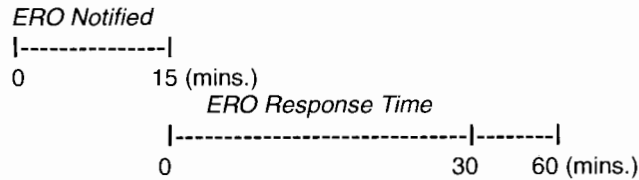
Duke Energy has requested that the ERO augmentation times for the Brunswick, Harris, and Robinson sites be changed so that they are consistent with the times for the Catawba, McGuire, Oconee, and Lee sites, which are currently served by the Duke Charlotte EOF.

In Enclosure 1, Section 2.0 of the LAR (Reference 1), Duke Energy stated:

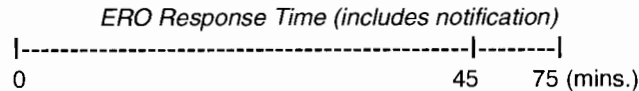
[Duke] Charlotte EOF members are currently required to augment within 75 minutes from [the time of] declaration of an Alert or higher event classification. The BSEP [Brunswick], HNP [Harris], and RNP [Robinson] required EOF augmentation times are 60 to 75 minutes from [the time of] notification of an Alert or higher event classification. Thus, to support the EOF consolidation, Duke Energy also requests to change the augmentation time of the 60 to 75 minute (from notification) responders at BSEP, HNP, and RNP to 75 minutes (from declaration). Similar to this request, all HNP and RNP 30 to 45 minute (from notification) responders are requested to be changed to 45 minutes (from declaration). BSEP does not have 30 to 45 minute responders.

Duke Energy is requesting that if an ERO responder currently responds within 30 to 45 minutes from notification, those responders should now be allowed to respond within 45 minutes from event declaration. Additionally, if a responder currently responds within 60 to 75 minutes from notification, those responders would now be allowed to respond within 75 minutes of event declaration. This change effectively results in ERO augmentation being required within 45 and 75 minutes of classification, respectively. This change is acceptable, since the existing emergency plans for Brunswick, Harris, and Robinson currently allow up to 15 minutes from the time of event declaration to notify ERO responders. As such, the proposed change does not impact the overall timeframe for ERO response within 45 and 75 minutes, respectively, from the time of event declaration (see below).

Currently: (Time "0" reflects time of event declaration)



Proposed: (Time "0" reflects time of event declaration)



Based on the foregoing considerations, the NRC staff concludes that Duke Energy's proposed changes to augmentation of response capabilities continue to meet (1) the requirement of 10 CFR 50.47(b)(2), which specifies, in part, that timely augmentation of response capabilities is available; (2) the requirements in Appendix E.IV.C to 10 CFR Part 50, which describe, in part, the need for alert and activation of the emergency organization at specified emergency action levels; and (3) the evaluation criteria of Section II.B of NUREG-0654.

### 3.2.3 Brunswick Emergency Response Organization Augmentation Drill Frequency

In Enclosure 1, Section 1.0 of the LAR (Reference 1), Duke Energy requested to reduce the frequency of the Brunswick site's unannounced ERO augmentation drill from twice per year to once per year. The other sites served by the Duke Charlotte EOF only participate in an unannounced augmentation drill once per year or less, with the exception of Robinson, which has a biennial requirement.

Brunswick's ERO augmentation drill frequency was increased from biennial to semi-annual as one of the corrective actions in response to an NRC letter dated December 21, 2010 (Reference 20), which details that on June 6, 2010, the Brunswick ERO, "...failed to provide initial facility accident response through timely augmentation of on-shift staffing after declaration of an Alert at Brunswick. Specifically, the OSC, TSC, and EOF were not activated until approximately two and one-half hours after the Alert was declared." In addition to increasing the frequency of the ERO augmentation drills in response to this violation, Brunswick also shifted to an all-call/all-come ERO response process and implemented an improved ERO automated notification system.

In Enclosure 1, Section 2.0 of the LAR (Reference 1), Duke Energy stated:

Since the implementation of the corrective actions, BSEP has not failed timely augmentation during an augmentation drill or actual event. The BSEP ERO augmentation performance over this greater than 5 year time period demonstrates that the ERO does have the capability to augment the on-site ERO within the required timeframe; therefore, the vulnerability no longer exists. Note that this request does not change the all-call/all-come callout methodology and the resulting frequency (once per year) is still greater than the frequency prior to the June 6, 2010 event (once per two years). For these reasons, it is not



expected that the requested change would adversely affect current augmentation performance.

The NRC staff finds that this change in unannounced ERO augmentation drill frequency for the Brunswick site is considered acceptable based on the successful conduct of ERO augmentation drills over a greater than 5-year time period. In addition, the proposed change will continue to meet: (1) the requirements of 10 CFR 50.47(b)(14), which state that periodic drills be conducted to develop and maintain key skills; (2) the requirements of 10 CFR Part 50, Appendix E, IV.F.2.b, which require that actions be taken to ensure that adequate emergency response capabilities are maintained during the interval between biennial exercises by conducting drills, including at least one drill involving a combination of some of the principal functional areas of the licensee's onsite emergency response capabilities; and (3) the evaluation criteria of Section II.N of NUREG-0654.

### 3.2.4 Multi-Site Drill Frequency and Locations

The Oconee Emergency Plan currently specifies conducting a multi-site drill every six years with either McGuire or Catawba. In its letters dated October 3, 2016, and January 16, 2017 (Reference 2 and 3, respectively), Duke Energy requested NRC approval to decrease the frequency of a multi-site drill at Oconee from once every 6 years to once every 8 years and allow performance of the multi-site drill with Duke sites other than Oconee, McGuire, or Catawba.

In its letter dated January 16, 2017, Duke Energy states:

The proposed 8 year frequency aligns with the 8 year exercise cycle described in 10 CFR 50 Appendix E, Section IV.F.2.j. The ONS [Oconee] 6 year frequency was created prior to establishment of the 8 year exercise cycle in 10 CFR [Part 50] Appendix E (2011 rule change). The 2011 rule change (FR 72590) established an 8 year frequency versus a 6 year frequency in order to preserve variability of scenario challenges, considering the new scenario content requirements that were also included in the rule change. Similarly, extending the ONS multi-site drill frequency would aid in preserving variability of scenario challenges. If the 6 year frequency is maintained, eventually there would be two multi-site drills required to be performed in one 8 year cycle. Lastly, this frequency change request is further supported by the successful performance of the two multi-site drills since inception of the requirement (drills in 2005 and 2011). The new multi-site drill requirement would also allow performance of the drill with any two sites that the [Duke] Charlotte EOF supports and the requirement would be moved from the ONS Emergency Plan into the procedure governing Duke Energy Emergency Preparedness drill performance. Performance of the drill with any two sites does not diminish or alter the quality of testing the ability of the [Duke] Charlotte EOF to respond to simultaneous events. Furthermore, movement of the requirement from the Emergency Plan to a procedure will continue to ensure the drill is performed and any changes to the requirement will continue to be evaluated under 10 CFR 50.54(q).

The change in multi-drill frequency for Oconee from once every 6 years to once every 8 years, and the change to allow performance of the multi-site drill with Duke Energy sites other than Oconee, McGuire, or Catawba, further enhances the opportunities for the Duke Charlotte EOF to demonstrate its ability to effectively support simultaneous events at sites across the Duke



Energy fleet, rather than simply focus on the Oconee site. Additionally, the NRC finds that these changes are acceptable because they will continue to meet: (1) the requirements of 10 CFR 50.47(b)(14), which require that periodic drills be conducted to develop and maintain key skills; (2) the requirements of 10 CFR Part 50, Appendix E, IV.F.2.b, which require that actions be taken to ensure that adequate emergency response capabilities are maintained during the interval between biennial exercises by conducting drills, including at least one drill involving a combination of some of the principal functional areas of the licensee's onsite emergency response capabilities; and (3) the evaluation criteria of Section II.N of NUREG-0654.

### 3.3 NRC Staff Conclusion

The NRC staff finds that the proposed changes in Brunswick, Harris, Robinson, and Oconee Emergency Plans, as contained in the LAR (Reference 1), as supplemented by letters dated October 3, 2016, and January 16, 2017 (References 2 and 3, respectively), continue to meet the applicable requirements in 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50 and guidance contained in Revision 1 of NUREG-0654/FEMA-REP-1; Section 4 of NUREG-0696; and Section VI.I of NSIR/DPR-ISG-01.

In addition, on the basis of its evaluation, the NRC staff concludes the Duke Charlotte EOF will continue to fulfill necessary emergency response functions and meet applicable regulations in 10 CFR 50.47 and Appendix E to 10 CFR Part 50 and criteria set forth in NUREG-0696, as supplemented by NSIR/DPR ISG-01. Given the technological capabilities of the facility, the EOF's capacity to address multi-site events, an ERO comprised of experienced and diverse personnel from the Duke Energy corporate offices, and longstanding NRC and State experience with the Duke Charlotte EOF, the further consolidation of the Duke Charlotte EOF will continue to effectively support Duke Energy's emergency response at all of the sites that the facility serves. The NRC staff finds that there will be reasonable assurance that protective measures can and will be implemented in the event of a radiological emergency at any of the sites that the facility serves. This is consistent with the conclusion found within SECY-17-0050, (Reference 4), where the NRC staff recommended that the Commission approve the proposal to consolidate the EOFs for Brunswick, Harris, and Robinson with the existing Duke Charlotte EOF, which was approved by the Commission in the SRM to SECY-17-0050 (Reference 5).

Therefore, the NRC staff concludes that the licensee's proposed changes in Brunswick, Harris, Robinson, and Oconee Emergency Plans, as detailed in the LAR, as supplemented by letters dated October 3, 2016, and January 16, 2017, are acceptable.

### 4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the States of South Carolina and North Carolina officials were notified of the proposed issuance of the amendments on July 11, 2017. The State officials had no comments.

### 5.0 ENVIRONMENTAL CONSIDERATION

The amendments change 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 amendments involve 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 amendments involve no

significant hazards consideration, and there has been no public comment on such finding published in the *Federal Register* on February 14, 2017 (82 FR 10594). Accordingly, the amendments meet 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 amendments.

## 6.0 CONCLUSION

The NRC 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 NRC's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

## 7.0 REFERENCES

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2. Duke Energy, "Response to Request for Additional Information (RAI) Regarding Application for Emergency Operations Facility (EOF) Consolidation," dated October 3, 2016 (ADAMS Accession No. ML16277A521).
3. Duke Energy, "Supplemental Information Regarding Application for Emergency Operations Facility (EOF) Consolidation," dated January 16, 2017 (ADAMS Accession No. ML17017A210).
4. U.S. Nuclear Regulatory Commission, SECY-17-0050, "Duke Energy Proposal to Further Consolidate Duke Corporate Emergency Operations Facility," dated April 14, 2017 (ADAMS Accession No. ML16363A431).
5. U.S. Nuclear Regulatory Commission, SRM – SECY-17-0050, "Duke Energy Proposal to Further Consolidate Duke Corporate Emergency Operations Facility," dated May 17, 2017 (ADAMS Package Accession No. ML17137A116).
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10. Tucker, Hal B., Duke Power Company, letter to Harold R. Denton, U.S. Nuclear Regulatory Commission, enclosing Response to Supplement 1 to NUREG-0737," dated April 14, 1983 (ADAMS Accession No. ML17093A805).
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14. U.S. Nuclear Regulatory Commission, CLI-16-19, "Commission Memorandum and Order," dated December 15, 2016 (ADAMS Accession No. ML16350A070).
15. U.S. Nuclear Regulatory Commission, "William States Lee III Nuclear Station Unit 1 and Unit 2 Combined Operating Licenses," dated December 19, 2016 (ADAMS Package Accession Nos. ML16333A329 and ML16333A331, respectively).
16. U.S. Nuclear Regulatory Commission, SRM – SECY-04-0236, "Southern Nuclear Operating Company's Proposal to Establish a Common Emergency Operating Facility at its Corporate Headquarters," dated February 23, 2005 (ADAMS Accession No. ML050550131).
17. U.S. Nuclear Regulatory Commission and Federal Emergency Management Agency (FEMA), "Memorandum of Understanding Between the Department of Homeland Security/Federal Emergency Management Agency and Nuclear Regulatory Commission Regarding Radiological Emergency Response, Planning, and Preparedness," dated December 7, 2015 (ADAMS Accession No. ML15344A371).
18. FEMA letter, "FEMA Review of Duke Energy Request to Further Consolidate Site EOFs," dated October 3, 2016 (ADAMS Accession No. ML16287A740).
19. Nuclear Energy Institute (NEI) 99-02 (Revision 7), "Regulatory Assessment Performance Indicator Guideline," dated August 31, 2013 (ADAMS Accession No. ML13261A116).

20. U.S. Nuclear Regulatory Commission, "Final Significance Determination of White Finding and Notice of Violation (NRC Inspection Report No. 05000325/2010010 and 05000324/2010010; Brunswick Steam Electric Plant); Follow-up Assessment Letter," dated December 21, 2010 (ADAMS Accession No. ML103560553).

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**SUBJECT:** BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2; SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1; H. B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2; AND OCONEE NUCLEAR STATION, UNITS 1, 2, AND 3 – ISSUANCE OF AMENDMENTS TO CONSOLIDATE EMERGENCY OPERATIONS FACILITIES AND ASSOCIATED EMERGENCY PLAN CHANGES (CAC NOS. MF7650, MF7651, MF7652, MF7653, MF7654, MF7655, MF7656, MF7657, MF7658, MF7659, AND MF7660) DATED AUGUST 21, 2017

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