



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

May 24, 2016

Mr. Steven D. Capps  
Vice President  
McGuire Nuclear Station  
Duke Energy Carolinas, LLC  
12700 Hagers Ferry Road  
Huntersville, NC 28078-8985

SUBJECT: MCGUIRE NUCLEAR STATION, UNITS 1 AND 2 - ISSUANCE OF  
AMENDMENTS REGARDING EMERGENCY ACTION LEVEL SCHEME  
CHANGE (CAC NOS. MF6223 AND MF6224)

Dear Mr. Capps:

The U.S. Nuclear Regulatory Commission has issued the enclosed Amendment No. 286 to Renewed Facility Operating License No. NPF-9 and Amendment No. 265 to Renewed Facility Operating License No. NPF-17 for the McGuire Nuclear Station, Units 1 and 2. The amendments are in response to your application dated May 7, 2015, as supplemented by letter dated February 18, 2016.

The amendments approve adoption of an emergency action level scheme 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. NEI 99-01, Revision 6, was endorsed by the NRC by letter dated March 28, 2013.

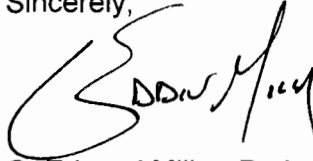
A copy of the related Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

S. Capps

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If you have any questions, please contact me at 301-415-2481 or [Ed.Miller@nrc.gov](mailto:Ed.Miller@nrc.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "G. Edward Miller". The signature is stylized with a large, sweeping initial "G" and a long, horizontal stroke extending to the right.

G. Edward Miller, Project Manager  
Plant Licensing Branch II-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-369 and 50-370

Enclosures:

1. Amendment No. 286 to NPF-9
2. Amendment No. 265 to NPF-17
3. Safety Evaluation

cc: Listserv



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

DUKE ENERGY CAROLINAS, LLC

DOCKET NO. 50-369

MCGUIRE NUCLEAR STATION, UNIT 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

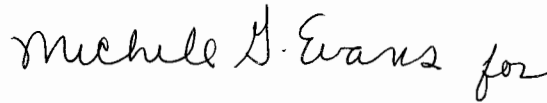
Amendment No. 286  
Renewed License No. NPF-9

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment to the McGuire Nuclear Station, Unit 1 (the facility), Renewed Facility Operating License No. NPF-9, filed by Duke Energy Carolinas, LLC (licensee), dated May 7, 2015, as supplemented by letter dated February 18, 2016, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations as 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.

Enclosure 1

2. Accordingly, by Amendment No. 286, Renewed Facility Operating License No. NPF-9 is hereby amended to authorize implementation of the emergency action level scheme described in the licensee's application dated May 7, 2015, as supplemented by letter dated February 18, 2016, and evaluated in the NRC staff's safety evaluation enclosed with this amendment.
3. This license amendment is effective as of its date of issuance and shall be implemented within 180 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in cursive script that reads "Michelle G. Evans for".

William M. Dean, Director  
Office of Nuclear Reactor Regulation

Date of Issuance: May 24, 2016



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

DUKE ENERGY CAROLINAS, LLC

DOCKET NO. 50-370

MCGUIRE NUCLEAR STATION, UNIT 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 265  
Renewed License No. NPF-17

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment to the McGuire Nuclear Station, Unit 2 (the facility), Renewed Facility Operating License No. NPF-17, filed by Duke Energy Carolinas, LLC (the licensee), dated May 7, 2015, as supplemented by letter dated February 18, 2016, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations as 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.

Enclosure 2

2. Accordingly, by Amendment No. 286, Renewed Facility Operating License No. NPF-17 is hereby amended to authorize implementation of the emergency action level scheme described in the licensee's application dated May 7, 2015, as supplemented by letter dated February 18, 2016, and evaluated in the NRC staff's safety evaluation enclosed with this amendment.
3. This license amendment is effective as of its date of issuance and shall be implemented within 180 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

*Michelle H Evans for*

William M. Dean, Director  
Office of Nuclear Reactor Regulation

Date of Issuance: May 24, 2016



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO

AMENDMENT NO. 286 TO RENEWED FACILITY OPERATING LICENSE NO. NPF-9

AND

AMENDMENT NO. 265 TO RENEWED FACILITY OPERATING LICENSE NO. NPF-17

DUKE ENERGY CAROLINAS, LLC

MCGUIRE NUCLEAR STATION, UNITS 1 AND 2

DOCKET NOS. 50-369 AND 50-370

1.0 INTRODUCTION

By application dated May 7, 2015 (Agencywide Documents Access and Management System (ADAMS) Package Accession No. ML15141A047), as supplemented by letter dated February 18, 2016 (ADAMS Package Accession No. ML16056A254), Duke Energy, (the licensee) requested a change to the emergency plan for the McGuire Nuclear Station, Units 1 and 2 (McGuire). The proposed change would revise the emergency action level (EAL) scheme for each unit 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. 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 supplement provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the staff's original proposed no significant hazards consideration determination as published the *Federal Register* on June 23, 2015 (80 FR 35981).

2.0 REGULATORY EVALUATION

The applicable regulations and guidance for nuclear power plant 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 Section 50.47(a)(1)(i) of 10 CFR Part 50 states, 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) of 10 CFR Part 50 also 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.

Section 50.47(b)(4) of 10 CFR Part 50 requires that onsite and offsite emergency response plans meet the following:

A standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee, and State and local response plans call for reliance on information provided by facility licensees for determinations of minimum initial offsite response measures.

The use of a standard emergency classification and action level scheme assures that implementation methods are relatively consistent throughout the industry for a given reactor and containment design and provides an opportunity for a licensee to modify its EAL scheme, as necessary, to address plant-specific design considerations or preferences.

Section IV.B.1 of Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities," to 10 CFR Part 50, states, in part:

The means to be used for determining the magnitude of, and for continually assessing the impact of, the release of radioactive materials shall be described, including emergency action levels that are to be used as criteria for determining the need for notification and participation of local and State agencies, the Commission, and other Federal agencies, and the emergency action levels that are to be used for determining when and what type of protective measures should be considered within and outside the 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 and was subsequently revised in NUREG-0654/FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants (ADAMS Accession No. ML040420012)," which was endorsed as an approach for the development of an EAL scheme via NRC Regulatory Guide (RG) 1.101, Revision 2,



"Emergency Planning and Preparedness for Nuclear Power Reactors (ADAMS Accession No. ML13038A097)."

As industry and regulatory experience were gained with the implementation and use of EAL schemes, the industry issued revised EAL scheme development guidance to reflect lessons learned. To date, NUMARC/NESP-007 and NEI 99-01, Revisions 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, 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 (ADAMS Accession No. ML080430535). NEI 99-01, Revision 6, November 2012 (ADAMS Accession No. ML12326A805), was endorsed by the NRC as generic (non-plant-specific) EAL scheme development guidance via letter dated March 28, 2013 (ADAMS Accession No. ML12346A463).

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 to 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 Section IV.B.2 of Appendix E to 10 CFR Part 50, a revision to an EAL must be requested by a license amendment application, and the amendment must be approved by the NRC before implementation, if the licensee is changing from one EAL scheme to another.

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

NRC Regulatory Issue Summary (RIS) 2003-18, "Use of NEI 99-01, Methodology for Development of Emergency Action Levels," with Supplements 1 and 2, also provides guidance for developing or changing a standard emergency classification and action level scheme. In addition, RIS 2003-18, 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 whether a generic EAL scheme development guidance document is 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, 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).

### 3.0 TECHNICAL EVALUATION

In its application, the licensee proposes to change its current EAL scheme, which is based on NUMARC/NESP-007, Revision 2, to one based on NEI 99-01, Revision 6. In its application and supplemental letter, the licensee submitted the proposed EAL scheme; the technical basis containing an evaluation and rationale for each proposed EAL change; and a matrix providing a line-by-line comparison of the proposed initiating conditions (ICs), mode applicability, and EAL wording to that found in NEI 99-01, Revision 6. The comparison matrix also included a description of global changes applicable to the EAL scheme and a justification for any differences or deviations from NEI 99-01, Revision 6. 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 reviewed the proposed plant-specific EAL scheme, technical basis, comparison matrix, and all additional information provided in the licensee's application and supplemental letter. As discussed in this safety evaluation (SE), the NRC staff found that the proposed EALs include plant-specific deviations from NEI 99-01, Revision 6, 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 plant-specific indicators);
- Technical completeness for each classification level;

- Logical progression in classification for multiple events; and
- Objective and observable values.

As discussed in this SE, the NRC staff determined that the proposed EAL modifications do not alter the intent of any specific EAL described in NEI 99-01, Revision 6. The licensee proposed to modify its proposed EAL scheme using the generic EAL scheme development guidance provided in NEI 99-01, Revision 6. This allowed the licensee 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.

To aid in understanding the nomenclature used in this SE, the following conventions are 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)
- The number denotes the sequential subcategory designation from the plant-specific EAL scheme.

In addition, a set refers to all emergency classification levels (GE, SAE, A, and U) that share the same EAL category and subcategory.

This SE 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, is shown in [brackets] to provide a cross-reference between the McGuire plant-specific EAL numbering convention and that of the guidance in NEI 99-01, Revision 6.

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

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

The intent of this EAL set is to ensure that the appropriate classification is made based upon plant-specific indications of a release of radioactivity (gaseous and/or liquid). The NRC staff reviewed the licensee's evaluation and justification for plant-specific EAL changes associated with this set and 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 plant-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. The NRC staff determined that the numbering, sequencing, and format of this EAL set are consistent with the overall EAL scheme development guidance with respect to indications of a release of radioactivity and with the plant-specific implementation strategies provided in NEI 99-01, Revision 6, 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.

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

The intent of this EAL set is ensure that appropriate classification is made based upon plant-specific indications of fuel being uncovered, including spent fuel stored in the spent fuel pool or refueling pathway. The NRC staff reviewed the licensee's evaluation and justification for plant-specific EAL changes associated with this set and 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 plant-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. The NRC staff determined that the numbering, sequencing, and format of this EAL set are consistent with the overall EAL scheme development guidance with regard to fuel being uncovered 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 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.

### 3.1.3 McGuire EAL RA3 [AA3]

This EAL is not part of an EAL set within the overall EAL scheme. This EAL is based upon radiation levels in the plant that limit normal access. This Alert EAL is 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 plant-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. The NRC staff determined that the numbering, sequencing and format of this EAL are consistent with the overall EAL scheme development guidance with respect to radiation levels that limit normal access 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.

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

#### 3.2.1 McGuire EAL Set CG1/CS1/CA1/CU1 [CG1/CS1/CA1/CU1]

The intent of this EAL set is to ensure that the appropriate classification is made based upon a loss of reactor pressure vessel (RPV) inventory and/or reactor coolant system (RCS) leakage. The NRC staff reviewed the licensee's evaluation and justification for plant-specific EAL changes associated with this set and has determined that the progression from UE to GE is appropriate and consistent with EAL scheme development guidance.

The NRC staff determined that the numbering, sequencing, and format of this EAL set are consistent with the overall EAL scheme development guidance with respect to loss of RPV inventory and/or RCS leakage 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.

#### 3.2.2 McGuire EAL Set CA2/CU2 [CA2/CU2]

The intent of this EAL set is to ensure that the appropriate classification is made based upon a loss of available alternating current (AC) electrical power to the busses. The NRC staff reviewed the licensee's evaluation and justification for plant-specific EAL changes associated with this set and 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 determined that the numbering, sequencing, and format of this EAL set are consistent with the overall EAL scheme development guidance with respect to loss of electrical power 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.

### 3.2.3 McGuire EAL Set CA3/CU3 [CA3/CU3]

The intent of this EAL set is to ensure that the appropriate classification is made based upon an inability to maintain control of decay heat removal. The NRC staff reviewed the licensee's evaluation and justification for plant-specific EAL changes associated with this set and 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 determined that the numbering, sequencing, and format of this EAL set are consistent with the overall EAL scheme development guidance with respect to the ability to maintain control of decay heat removal 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 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.

### 3.2.4 McGuire EAL CU4 [CU4]

This EAL is not part of an EAL set within the overall EAL scheme. The intent of the EAL 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 determined that the numbering, sequencing, and format of this EAL are consistent with the overall EAL scheme development guidance with respect to a loss of DC

power 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.

### 3.2.5 McGuire EAL CU5 [CU5]

This EAL is not part of an EAL set within the overall EAL scheme. The intent of the EAL 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 with offsite response organizations (OROs), including the NRC, are lost. The NRC staff reviewed the licensee's evaluation and justification for plant-specific changes associated with this EAL and has determined that no escalation path is necessary for this EAL.

The NRC staff determined that the numbering, sequencing, and format of this EAL are consistent with the overall EAL scheme development guidance with respect to emergency communications 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.

### 3.2.6 McGuire EAL CA6 [CA6]

This EAL is not part of an EAL set within the overall EAL scheme. The intent of the EAL 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 determined that the numbering, sequencing, and format of this EAL are consistent with the overall EAL scheme development guidance with respect to hazardous events that lead to potential damage to safety systems 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.

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

#### 3.3.1 McGuire EAL EU1 [E-HU1]

This EAL is not part of an EAL set within the overall EAL scheme. The EAL is limited to radiological events at the ISFSI. The NRC staff reviewed the licensee's evaluation and justification for plant-specific changes associated with this EAL and has determined that while security-related events at the ISFSI are also of concern, they are bounded by the licensee's EAL HA1.

The licensee chose to modify this EAL 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. The NRC staff determined that the numbering, sequencing, and format of this EAL are consistent with the overall EAL scheme development guidance with respect to events at the ISFSI 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.

### 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. Light-water nuclear power plants in the United States have three fission product barriers: fuel cladding, the RCS, and the primary containment. Licensees develop thresholds that provide EAL decisionmakers 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 'S' 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 NRC also verified that 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. The NRC staff 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.

### 3.5 Category 'H' – Hazards

#### 3.5.1 McGuire EAL Set HG1/HS1/HA1/HU1 [HG1/HS1/HA1/HU1]

The intent of this EAL set is to ensure that the appropriate classification is made based upon security-related events originally developed in accordance with the guidance from NRC Bulletin 2005-02 and RIS 2006-12 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 listed in NRC Bulletin 2005-02 and RIS 2006-12.

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

Further, the NRC staff 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.

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.

### 3.5.2 McGuire EAL HU2 [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, CA6, and SA9.

The NRC staff determined that the numbering, sequencing, and format of this EAL are consistent with the overall EAL scheme development guidance with respect to seismic events 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.

### 3.5.3 McGuire EAL HU3 [HU3]

This EAL is not part of an EAL set within the overall EAL scheme. The intent of this EAL is to ensure that the appropriate classification is made 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, CA6, and SA9.

The NRC staff determined that the numbering, sequencing, and format of this EAL are consistent with the overall EAL scheme development guidance with respect to natural and destructive hazards 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.

### 3.5.4 McGuire EAL HU4 [HU4]

This EAL is not part of an EAL set within the overall EAL scheme. The intent of this EAL is to ensure that the appropriate classification is made 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, CA6, and SA9.

The NRC staff determined that the numbering, sequencing, and format of this EAL are consistent with the overall EAL scheme development guidance with respect to fire hazards 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.

#### 3.5.5 McGuire EAL HA5 [HA5]

This EAL is not part of an EAL set within the overall EAL scheme. The intent of this EAL is to ensure that the appropriate classification is made 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 determined that the numbering, sequencing, and format of this EAL are consistent with the overall EAL scheme development guidance with respect to toxic, corrosive, asphyxiant, or flammable gases, 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.

#### 3.5.6 McGuire EAL Set HS6/HA6 [HS6/HA6]

The intent of this EAL set is to ensure that the appropriate classification is made based upon control room evacuation and the inability to control critical plant systems remotely. The NRC staff reviewed the licensee's evaluation and justification for plant-specific changes associated with this EAL set and 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 determined that the numbering, sequencing, and format of this EAL set are consistent with the overall EAL scheme development guidance with respect to control room evacuation and the ability to control critical plant systems remotely 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.

### 3.5.7 McGuire EAL Set HG7/HS7/HA7/HU7 [HG7/HS7/HA7/HU7]

The intent of this EAL set is to ensure that the appropriate classification is made by providing decisionmakers with EALs to consider when, in their judgment, an emergency classification is warranted.

The NRC staff determined that the numbering, sequencing, and format of this EAL set are consistent with the overall EAL scheme development guidance with respect to decisionmaker judgment 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.

## 3.6 Category 'S' – System Malfunction

### 3.6.1 McGuire EAL Set SG1/SS1/SA1/SU1 [SG1/SS1/SA1/SU1]

The intent of this EAL set is to ensure that the appropriate classification is made based upon a loss of available alternating current (AC) power sources to the emergency busses. The NRC staff reviewed the licensee's evaluation and justification for plant-specific changes associated with this EAL set and has determined that the progression from UE to GE is appropriate and consistent with EAL scheme development guidance.

The NRC staff determined that the numbering, sequencing, and format of this EAL set are consistent with the overall EAL scheme development guidance with respect to loss of AC power and with the plant-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.

### 3.6.2 McGuire EAL Set SG1.2/SS2 [SG8/SS8]

The intent of this EAL set is to ensure that the appropriate classification is made based upon a loss of site AC and DC power sources. The intent of the EAL 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 plant-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. The NRC staff determined that the numbering, sequencing, and format of this EAL set are consistent with the overall EAL scheme development guidance with respect to loss of AC and DC power 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 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.

### 3.6.3 McGuire EAL Set SA3/SU3 [SA2/SU2]

The intent of this EAL set is to ensure that the appropriate classification is made based upon the effect that a loss of available indicators in the control room has on the facility. The NRC staff reviewed the licensee's evaluation and justification for plant-specific changes associated with this EAL set and 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 plant-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. The NRC staff determined that the numbering, sequencing, and format of this EAL set are consistent with the overall EAL scheme development guidance with respect to loss of indicators in the control room 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 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.

### 3.6.4 McGuire EAL SU5 [SU4]

This EAL is not part of an EAL set within the overall EAL scheme. The intent of the EAL 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 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. The NRC staff determined that the numbering, sequencing, and format of this EAL are consistent with the overall EAL scheme development guidance with respect to indications of RCS leakage 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.

#### 3.6.5 McGuire EAL Set SS6/SA6/SU6 [SS5/SA5/SU5]

The intent of this EAL set is to ensure that the appropriate classification is made based upon the effect that a failure of the reactor protection system may have on the plant. The NRC staff reviewed the licensee's evaluation and justification for plant-specific changes associated with this EAL set and 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 plant-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. The NRC staff determined that the numbering, sequencing, and format of this EAL set are consistent with the overall EAL scheme development guidance with respect to failure of the reactor protection system 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 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.

#### 3.6.6 McGuire EAL SU7 [SU6]

This EAL is not part of an EAL set within the overall EAL scheme. The intent of the EAL 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 with OROs, including the NRC, are lost. The NRC staff reviewed the licensee's evaluation and justification for plant-specific changes associated with this EAL and has determined that no escalation path is necessary.

The licensee chose to modify this EAL 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. The NRC staff determined that the numbering, sequencing, and format of this EAL are consistent with the overall EAL scheme development guidance with respect to emergence communications 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 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.

#### 3.6.7 McGuire EAL SU4 [SU3]

This EAL is not part of an EAL set within the overall EAL scheme. The intent of the EAL is to ensure that an EAL is declared when RCS activity is greater than technical specification allowable limits. 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, and RG1.

The licensee chose to modify this EAL 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. The NRC staff determined that the numbering, sequencing, and format of this EAL are consistent with the overall EAL scheme development guidance with respect to RCS activity 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.

#### 3.6.8 McGuire EAL SA9 [SA9]

This EAL is not part of an EAL set within the overall EAL. The intent of the EAL 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 NRC staff determined that the numbering, sequencing, and format of this EAL are consistent with the overall EAL scheme development guidance with respect to hazardous events that lead to potential damage to safety systems 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.

#### 3.6.9 McGuire EAL SU8 [SU7]

This EAL is not part of an EAL set within the overall EAL scheme. The intent of the EAL 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. 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, and RG1.

The licensee chose to modify this EAL 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. The NRC staff determined that the numbering, sequencing, and format of this EAL are consistent with the overall EAL scheme development guidance with respect to indications of containment barrier degradation 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.

### 3.7 NRC Review Result Summary

The NRC staff 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. Thus, the proposed changes meet the requirements in Appendix E to 10 CFR Part 50 and the planning standards of 10 CFR 50.47(b).

The NRC staff 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.

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 plant-specific EAL basis document provided by the enclosure (ADAMS Accession No. ML16056A243) of the letter dated February 18, 2016, is acceptable.

#### 4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the North Carolina State official was notified of the proposed issuance of the amendments. The State official had no comments.

#### 5.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to the installation or use of facility components located within the restricted area as defined in 10 CFR Part 20 because the amendment approves an acceptable EAL scheme which is required for operation of the facility. 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 (80 FR 50663). 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 Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) there is reasonable assurance that such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

## 7.0 REFERENCES

1. Generic Letter 79-50, October 10, 1979 (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 Package Accession No. ML13091A209).
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 Duke Energy to U.S. Nuclear Regulatory Commission, "License Amendment Request to Adopt Emergency Action Level Scheme Pursuant to NEI 99-01, Revision 6, 'Development of Emergency Action Levels for Non-Passive Reactors' dated November 2012," April 30, 2015 (ADAMS Accession No. ML15141A047).
14. Letter from Duke Energy to U.S. Nuclear Regulatory Commission, "Response to Request for Additional Information Regarding the License Amendment Request (LAR) to Change the McGuire Nuclear Station (MNS) Emergency Plan to Upgrade MNS Emergency Action Levels Based on NEI 99-01, Revision 6," February 18, 2016 (ADAMS Accession No. ML16056A254).

Principal Contributors: Don Johnson, NSIR

Date: May 24, 2016

S. D. Capps

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If you have any questions, please contact me at 301-415-2481 or [Ed.Miller@nrc.gov](mailto:Ed.Miller@nrc.gov).

Sincerely,

**/RA/**

G. Edward Miller, Project Manager  
Plant Licensing Branch II-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-369 and 50-370

Enclosures:

1. Amendment No. 286 to NPF-9
2. Amendment No. 265 to NPF-17
3. Safety Evaluation

cc: Listserv

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**ADAMS Accession No.: ML16083A208**

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DATE	5/24/16	3/24/16 and 5/4/16	3/30/16	4/26/16
OFFICE	DORL/LPLII-1/BC	DORL/D	NRR/D	DORL/LPLII-1/PM
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