



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

September 28, 2026

Ms. Jamie M. Coleman
Regulatory Affairs Director
Southern Nuclear Operating Co., Inc.
3535 Colonnade Parkway
Birmingham, AL 35243

SUBJECT: JOSEPH M. FARLEY NUCLEAR PLANT, UNITS 1 AND 2; EDWIN I. HATCH NUCLEAR PLANT, UNITS 1 AND 2; AND VOGTLE ELECTRIC GENERATING PLANT, UNITS 1, 2, 3, AND 4, ISSUANCE OF AMENDMENTS REGARDING THE ADOPTION OF NEI 99-01, REVISION 7, "DEVELOPMENT OF EMERGENCY ACTION LEVELS FOR NON-PASSIVE REACTORS" (EPID L-2025-LLA-0157)

Dear Ms. Coleman:

The U.S. Nuclear Regulatory Commission (NRC) has issued the enclosed Amendment No. 263 to Renewed Facility Operating License No. NPF-2 and Amendment No. 260 to Renewed Facility Operating License No. NPF-8 for the Joseph M. Farley Nuclear Plant (Farley), Units 1 and 2, respectively; Amendment No. 334 to Subsequent Renewed Facility Operating License No. DPR-57 and Amendment No. 279 to Subsequent Renewed Facility Operating License No. NPF-5 for the Edwin I. Hatch Nuclear Plant (Hatch), Units 1 and 2, respectively; Amendment No. 233 to Renewed Facility Operating License NPF-68 and Amendment No. 215 to Renewed Facility Operating License NPF-81 for the Vogtle Electric Generating Plant (Vogtle), Units 1 and 2, respectively; and Amendment No. 219 to Combined License No. NPF-91 and Amendment No. 216 to Combined License No. NPF-92 for Vogtle, Units 3 and 4, respectively.

The amendments are in response to Southern Nuclear Operating Company's application dated September 30, 2025, as supplemented by letters dated February 10, and August 7, 2026. The amendments consist of the adoption of Nuclear Energy Institute (NEI) 99-01, Revision 7, "Development of Emergency Action Levels for Non-Passive Reactors," to replace the Emergency Action Level (EAL) schemes for Farley, Units 1 and 2, Hatch, Units 1 and 2, and Vogtle, Units 1 and 2, that are currently based on NEI 99-01, Revision 6. NEI 99-01, Revision 7, was endorsed by the NRC in a letter dated April 10, 2025. The license amendment request is to adopt a hybrid EAL scheme consisting of elements of NEI 99-01, Revision 7, and NEI 07-01, Revision 0, "Methodology for Development of Emergency Action Levels – Advanced Passive Light Water Reactors," for Vogtle, Units 3 and 4.

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

J. Coleman

- 2 -

If you have questions, please contact John Lamb at 301-415-3100 or John.Lamb@nrc.gov.

Sincerely,

/RA/

John G. Lamb, Senior Project Manager
Operating Reactor Licensing Branch 2
Division of Licensing Projects I
Office of Nuclear Reactor Regulation

Docket Nos. 50-348, 50-364, 50-321,
50-366, 50-424, 50-425,
52-025, and 52-026

Enclosures:

1. Amendment No. 263 to NPF-2
2. Amendment No. 260 to NPF-8
3. Amendment No. 334 to DPR-57
4. Amendment No. 279 to NPF-5
5. Amendment No. 233 to NPF-68
6. Amendment No. 215 to NPF-81
7. Amendment No. 219 to NPF-91
8. Amendment No. 216 to NPF-92
9. Safety Evaluation for Farley
10. Safety Evaluation for Hatch
11. Safety Evaluation for Vogtle, Units 1 and 2
12. Safety Evaluation for Vogtle, Units 3 and 4

cc: Listserv



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

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

ALABAMA POWER COMPANY

DOCKET NO. 50-348

JOSEPH M. FARLEY NUCLEAR PLANT, UNIT 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No 263
Renewed License No. NPF-2

1. The U.S. Nuclear Regulatory Commission (NRC or the Commission) has found that:
 - A. The application for amendment by Southern Nuclear Operating Company, Inc. (Southern Nuclear), dated September 30, 2025, as supplemented by letters dated February 10 and August 7, 2026, 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 license 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. 263, Renewed Facility Operating License No. NPF-2 is hereby amended to authorize revision to the Farley, Unit 1, emergency plan as set forth in the licensee's application dated September 30, 2025, as supplemented by letters dated February 10 and August 7, 2026, 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 365 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Signed by Anna Bradford on 09/28/2026

Anna Bradford, Director
Office of Nuclear Reactor Regulation

Attachment:
Changes to Renewed Facility
Operating License No. NPF-2

Date of Issuance: September 28, 2026



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

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

ALABAMA POWER COMPANY

DOCKET NO. 50-364

JOSEPH M. FARLEY NUCLEAR PLANT, UNIT 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 260
Renewed License No. NPF-8

1. The U.S. Nuclear Regulatory Commission (NRC or the Commission) has found that:
 - A. The application for amendment by Southern Nuclear Operating Company, Inc. (Southern Nuclear), dated September 30, 2025, as supplemented by letters dated February 10 and August 7, 2026, 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 license 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. 260, Renewed Facility Operating License No. NPF-8 is hereby amended to authorize revision to the Farley, Unit 2, emergency plan as set forth in the licensee's application dated September 30, 2025, as supplemented by letters dated February 10 and August 7, 2026, 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 365 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Signed by Anna Bradford on 09/28/2026

Anna Bradford, Director
Office of Nuclear Reactor Regulation

Attachment:
Changes to Renewed Facility
Operating License No. NPF-8

Date of Issuance: September 28, 2026



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

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

GEORGIA POWER COMPANY

OGLETHORPE POWER CORPORATION

MUNICIPAL ELECTRIC AUTHORITY OF GEORGIA

CITY OF DALTON, GEORGIA

DOCKET NO. 50-321

EDWIN I. HATCH NUCLEAR PLANT, UNIT NO. 1

AMENDMENT TO SUBSEQUENT RENEWED FACILITY OPERATING LICENSE

Amendment No. 334
Subsequent Renewed License No. DPR-57

1. The U.S. Nuclear Regulatory Commission (NRC or the Commission) has found that:
 - A. The application for amendment to the Edwin I. Hatch Nuclear Plant, Unit No. 1 (the facility) Subsequent Renewed Facility Operating License No. DPR-57 filed by Southern Nuclear Operating Company, Inc. (the licensee), acting for itself, Georgia Power Company, Oglethorpe Power Corporation, Municipal Electric Authority of Georgia, and City of Dalton, Georgia (the owners), dated September 30, 2025, as supplemented by letters dated February 10 and August 7, 2026, 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.

2. Accordingly, by Amendment No. 334, Subsequent Renewed Facility Operating License No. DPR-57 is hereby amended to authorize revision to the Hatch, Unit 1, emergency plan as set forth in the licensee's application dated September 30, 2025, as supplemented by letters dated February 10 and August 7, 2026, 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 365 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Signed by Anna Bradford on 09/28/2026

Anna Bradford, Director
Office of Nuclear Reactor Regulation

Attachment:
Changes to Subsequent Renewed Facility
Operating License No. DPR-57

Date of Issuance: September 28, 2026



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

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

GEORGIA POWER COMPANY

OGLETHORPE POWER CORPORATION

MUNICIPAL ELECTRIC AUTHORITY OF GEORGIA

CITY OF DALTON, GEORGIA

DOCKET NO. 50-366

EDWIN I. HATCH NUCLEAR PLANT, UNIT NO. 2

AMENDMENT TO SUBSEQUENT RENEWED FACILITY OPERATING LICENSE

Amendment No. 279
Subsequent Renewed License No. NPF-5

1. The U.S. Nuclear Regulatory Commission (NRC or the Commission) has found that:
 - A. The application for amendment to the Edwin I. Hatch Nuclear Plant, Unit 2 (the facility) Subsequent Renewed Facility Operating License No. NPF-5 filed by Southern Nuclear Operating Company, Inc. (the licensee), acting for itself, Georgia Power Company, Oglethorpe Power Corporation, Municipal Electric Authority of Georgia, and City of Dalton, Georgia (the owners), dated September 30, 2025, as supplemented by letters dated February 10 and August 7, 2026, 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.

2. Accordingly, by Amendment No. 279, Subsequent Renewed Facility Operating License No. DPR-5 is hereby amended to authorize revision to the Hatch, Unit 2, emergency plan as set forth in the licensee's application dated September 30, 2025, as supplemented by letters dated February 10 and August 7, 2026, 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 365 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Signed by Anna Bradford on 09/28/2026

Anna Bradford, Director
Office of Nuclear Reactor Regulation

Attachment:
Changes to Subsequent Renewed Facility
Operating License No. NPF-5

Date of Issuance: September 28, 2026



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

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

GEORGIA POWER COMPANY

OGLETHORPE POWER CORPORATION

MUNICIPAL ELECTRIC AUTHORITY OF GEORGIA

CITY OF DALTON, GEORGIA

DOCKET NO. 50-424

VOGTLE ELECTRIC GENERATING PLANT, UNIT 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 233
Renewed License No. NPF-68

1. The U.S. Nuclear Regulatory Commission (NRC or the Commission) has found that:
 - A. The application for amendment to the Vogtle Electric Generating Plant, Unit 1 (the facility) Renewed Facility Operating License No. NPF-68 filed by Southern Nuclear Operating Company, Inc. (the licensee), acting for itself, Georgia Power Company, Oglethorpe Power Corporation, Municipal Electric Authority of Georgia, and City of Dalton, Georgia (the owners), dated September 30, 2025, as supplemented by letters dated February 10 and August 7, 2026, 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.

2. Accordingly, by Amendment No. 233, Renewed Facility Operating License No. NPR-68 is hereby amended to authorize revision to the Vogtle, Unit 1, emergency plan as set forth in the licensee's application dated September 30, 2025, as supplemented by letters dated February 10 and August 7, 2026, 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 365 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Signed by Anna Bradford on 09/28/2026

Anna Bradford, Director
Office of Nuclear Reactor Regulation

Attachment:
Changes to Renewed Facility
Operating License No. NPF-68

Date of Issuance: September 28, 2026



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

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

GEORGIA POWER COMPANY

OGLETHORPE POWER CORPORATION

MUNICIPAL ELECTRIC AUTHORITY OF GEORGIA

CITY OF DALTON, GEORGIA

DOCKET NO. 50-425

VOGTLE ELECTRIC GENERATING PLANT, UNIT 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 215
Renewed License No. NPF-81

1. The U.S. Nuclear Regulatory Commission (NRC of the Commission) has found that:
 - A. The application for amendment to the Vogtle Electric Generating Plant, Unit 2 (the facility) Renewed Facility Operating License No. NPF-81 filed by Southern Nuclear Operating Company, Inc. (the licensee), acting for itself, Georgia Power Company Oglethorpe Power Corporation, Municipal Electric Authority of Georgia, and City of Dalton, Georgia (the owners), dated September 30, 2025, as supplemented by letters dated February 10 and August 7, 2026, 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.

2. Accordingly, by Amendment No. 215, Renewed Facility Operating License No. NPR-81 is hereby amended to authorize revision to the Vogtle, Unit 2, emergency plan as set forth in the licensee's application dated September 30, 2025, as supplemented by letters dated February 10 and August 7, 2026, 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 365 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Signed by Anna Bradford on 09/28/2026

Anna Bradford, Director
Office of Nuclear Reactor Regulation

Attachment:
Changes to Renewed Facility
Operating License No. NPF-81

Date of Issuance: September 28, 2026



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

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

GEORGIA POWER COMPANY

OGLETHORPE POWER CORPORATION

MEAG POWER SPVM, LLC

MEAG POWER SPVJ, LLC

MEAG POWER SPVP, LLC

CITY OF DALTON, GEORGIA

VOGTLE ELECTRIC GENERATING PLANT, UNIT 3

DOCKET NO. 52-025

AMENDMENT TO FACILITY COMBINED LICENSE

Amendment No. 219
License No. NPF-91

1. The U.S. Nuclear Regulatory Commission (NRC or the Commission) has found that:
 - A. The application for amendment by Southern Nuclear Operating Company, Inc., (SNC), dated September 30, 2025, as supplemented by letters dated February 10 and August 7, 2026, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's regulations set forth in 10 CFR Chapter I;
 - B. The facility will be constructed and 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 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. 219, Combined License No. NPR-91 is hereby amended to authorize revision to the Vogtle, Unit 3, emergency plan as set forth in the licensee's application dated September 30, 2025, as supplemented by letters dated February 10 and August 7, 2026, and evaluated in the NRC staff's safety evaluation enclosed with this amendment.
3. This license amendment is effective as of the date of its issuance and shall be implemented within 365 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Signed by Anna Bradford on 09/28/2026

Anna Bradford, Director
Office of Nuclear Reactor Regulation

Attachment(s):
Changes to facility
Combined License NPF-91

Date of Issuance: September 28, 2026



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

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

GEORGIA POWER COMPANY

OGLETHORPE POWER CORPORATION

MEAG POWER SPVM, LLC

MEAG POWER SPVJ, LLC

MEAG POWER SPVP, LLC

CITY OF DALTON, GEORGIA

VOGTLE ELECTRIC GENERATING PLANT, UNIT 4

DOCKET NO. 52-026

AMENDMENT TO FACILITY COMBINED LICENSE

Amendment No. 216
License No. NPF-92

1. The U.S. Nuclear Regulatory Commission (NRC or the Commission) has found that:
 - A. The application for amendment by Southern Nuclear Operating Company, Inc., (SNC), dated September 30, 2025, as supplemented by letters dated February 10, and August 7, 2026, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's regulations set forth in 10 CFR Chapter I;
 - B. The facility will be constructed and 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 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. 216, Combined License No. NPR-92 is hereby amended to authorize revision to the Vogtle, Unit 3, emergency plan as set forth in the licensee's application dated September 30, 2025, as supplemented by letters dated February 10 and August 7, 2026, and evaluated in the NRC staff's safety evaluation enclosed with this amendment.
3. This license amendment is effective as of the date of its issuance and shall be implemented within 365 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Signed by Anna Bradford on 09/28/2026

Anna Bradford, Director
Office of Nuclear Reactor Regulation

Attachment(s):
Changes to facility
Combined License NPF-92

Date of Issuance: September 28, 2026



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO

AMENDMENT NO. 263 TO RENEWED FACILITY OPERATING LICENSE NO. NPF-2

AMENDMENT NO. 260 TO RENEWED FACILITY OPERATING LICENSE NO. NPF-8

JOSEPH M. FARLEY NUCLEAR PLANT, UNITS 1 AND 2

SOUTHERN NUCLEAR OPERATING COMPANY

DOCKET NOS. 50-348, 50-364, AND 72-42

1.0 INTRODUCTION

By application dated September 30, 2025 (Agencywide Documents Access and Management System Accession No. ML25273A375), supplemented by letters dated February 10 (ML26041A355) and August 7, 2026 (ML26219A256), Southern Nuclear Operating Company (SNC, the licensee) requested U.S. Nuclear Regulatory Commission (NRC) approval of the revised emergency action level (EAL) scheme for the Joseph M. Farley Nuclear Plant (Farley), Units 1 and 2.

The proposed amendment would revise the EAL scheme to adopt the Nuclear Energy Institute's (NEI's) revised EAL scheme described in NEI 99-01, Revision 7, "Development of Emergency Action Levels for Non-Passive Reactors," September 2024 (ML24274A312). Revision 7 of NEI 99-01 was endorsed by the NRC staff by Regulatory Guide (RG) 1.101, Revision 7, September 2025 (ML25065A240). The current EAL scheme is based on the guidance established in NEI 99-01, Revision 6, "Methodology for Development of Emergency Action Levels," November 2012 (ML12326A805).

A notice of consideration of proposed issuance of amendments with proposed no significant hazards consideration determination was published in the *Federal Register* on April 14, 2026 (91 FR 19207), and there has been no public comment on such determination. The supplemental letters dated February 10 and August 7, 2026, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the NRC staff's original proposed no significant hazards consideration determination as published in this notice.

2.0 REGULATORY EVALUATION

The applicable regulations and guidance for the emergency plans are provided in sections 2.1 and 2.2 of this safety evaluation (SE).

2.1 Regulations

Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.47, "Emergency plans," sets forth emergency plan requirements for nuclear power plant facilities. The regulations in 10 CFR 50.47(a) require a determination that reasonable assurance of adequate protection protective measures can and will be taken in the event of a radiological emergency (reasonable assurance determination) prior to the issuance of an operating license or early site permit, as applicable.

Section 50.47(b) establishes the planning standards that the onsite and offsite emergency response plans must meet for NRC staff to make a finding that there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. Regulation 50.47(b)(4) requires a standard emergency classification and action level scheme be in use by the nuclear facility licensee, and that State and local response plans rely on the information provided by the licensee for minimum initial response measures.

The NRC notes that the requirement for a standard emergency classification and action level scheme ensures that implementation methods are reasonably consistent for a specific reactor and containment design while also allowing licensee modifications necessary to address unique design considerations as well as licensee preferences.

Section IV.B of Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities," to 10 CFR Part 50 states, in part, that, "A licensee desiring to change its entire emergency action level scheme shall submit an application for an amendment to its license and receive NRC approval before implementing the change," and establishes additional requirements for an EAL scheme. This section also specifies an annual review by State and local governmental authorities as well as the requirement for NRC prior approval prior to implementation of a new EAL scheme.

2.2 Guidance

EAL development guidance was initially established in response to the lessons learned from the Three-Mile Island event. A lack of a standardized, objective, and technically based emergency classification system led to communication breakdowns, inaccurate or incomplete plant assessments, and subjective notifications. An EAL scheme was developed to eliminate ambiguity, ensure consistent emergency communication, require objective emergency classification thresholds, and support coordinated offsite response. The implementation of the onsite and offsite (State and local) emergency plans only occurs when an EAL is declared thus making EAL schemes a significant part of the onsite and offsite emergency plans.

EAL scheme development guidance has been revised several times to incorporate lessons learned. Note that the naming convention for NRC-approved EAL scheme development guidance changed with the endorsement of NEI 99-01 EAL scheme for non-passive large light water reactor (LLWR) designs.

- Effective Revision 0, (initial) scheme development guidance – NRC Generic Letter (GL) 79 50, “Emergency Plans Submittal Dates,” dated October 10, 1979 (ML031320278).
- Effective Revision 1, scheme development guidance – NRC NUREG 0654/FEMA REP 1, Revision 1, “Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants,” November 1980 (ML040420012).
- Effective Revision 2, scheme development guidance - Nuclear Management and Resources Council, Inc., NUMARC/NESP-007, Revision 2, “Methodology for Development of Emergency Action Levels,” January 1992 (ML041120174).
- Effective Revision 3, scheme development guidance – This was to be a revision to NUMARC/NESP-007 but was cancelled as a parallel project (NEI 99-01) to completely revise the EAL scheme development methodology was chosen to be the best approach for EAL scheme development guidance. As a result, there is no effective revision 3 of NRC endorsed EAL scheme development guidance.
- NEI 99 01, Revision 4, “Methodology for Development of Emergency Action Levels,” January 2003 (ML030230250). Note that all future non-passive EAL scheme development guidance for non-passive LLWR designs will continue to use NEI 99-01 with the next sequential revision number for ease of use.
- NEI 99 01, Revision 5, “Methodology for Development of Emergency Action Levels,” February 2008 (ML080450149).
- NEI 99 01, Revision 6, “Development of Emergency Action Levels for Non-Passive Reactors,” November 2012 (ML12326A805).
- NEI 99 01, Revision 7, “Development of Emergency Action Levels for Non-Passive Reactors,” September 2024 (ML24274A312).

This guidance endorsed by NRC Regulatory Guide (RG) 1.101 (ML090440294) considered the criteria and recommendations in Revision 1 of NUREG-0654/FEMA-REP-1, Revision 1 to be approaches acceptable to the NRC for the development of an EAL scheme. Revision 7 of NEI 99-01 was endorsed by the NRC staff by RG 1.101, Revision 7, September 2025 (ML25065A240).

Although the EAL development guidance contained in NEI 99-01 is generic and may not be entirely applicable for some non-passive, LLWR designs, it 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. Licensees may choose to develop plant-specific EAL schemes using NEI 99-01, Revision 7, with appropriate plant-specific alterations as applicable.

2.3 NRC Staff Review – Key Characteristics of an Effective EAL Scheme

In its application dated September 30, 2025, as supplemented by letters dated February 10 and August 7, 2026, the licensee proposed to revise its EAL scheme to one based on NEI 99-01, Revision 7. In its application, the licensee submitted the proposed EAL scheme, the technical basis containing an evaluation and rationale for each proposed EAL change, and a comparison matrix providing a line-by-line comparison of the proposed Initiating Conditions, mode applicability, and EAL wording to that found in NEI 99-01, Revision 7. The comparison matrix also included a description of global changes applicable to the EAL scheme and a justification for any changes from NEI 99-01, Revision 7.

The NRC staff reviewed the information provided by the licensee to verify that the proposed EAL scheme is consistent with the guidance provided in NEI 99-01, Revision 7, to assure that the proposed EAL scheme meets the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4). The NRC staff reviewed the proposed site-specific EAL scheme, technical basis, comparison matrix, and all additional information provided in the licensee's application and supplemental letters. The NRC staff found that the proposed EALs have modifications from the NEI 99-01, Revision 7, guidance due to specific plant designs and licensee preference.

Based on its review of the application, the NRC staff has determined that an audit was needed to review the proposed license amendment request (LAR) justification supporting revision to the EAL scheme, and to determine if additional information may need to be docketed for the NRC staff to complete its review. The NRC issued the audit plan (ML26075B149) on March 30, 2026, and the audit summary (ML26223A533) on August 12, 2026.

The NRC staff verified that the instrumentation and set points derived for this proposed EAL scheme are consistent with the overall EAL scheme development guidance, address the plant-specific implementation strategies provided, and are consistent with a standard EAL scheme.

The NRC staff also verified that the EAL Basis Document contained the applicable guidance from Section 5.0, "Guidance on Making Emergency Classifications," of NEI 99-01 Revision 7.

Key Characteristics of an Effective EAL Scheme

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:

- The Initiating Conditions (ICs), EALs, Operating Mode Applicability criteria, Notes and Basis information are consistent with industry guidance. While the actual wording may be different, the classification intent is maintained. With respect to Recognition Category F, a site-specific scheme must include some type of user-aid to facilitate timely and accurate classification of fission product barrier losses and/or potential losses. The user-aid logic must be consistent with the classification logic presented in Section 9 of NEI 99-01 Revision 7.
- The ICs, EALs, Operating Mode Applicability criteria, Notes and Basis information are technically complete and accurate (i.e., they contain the information necessary to make a correct classification).
- EAL statements use objective criteria and observable values.
- ICs, EALs, Operating Mode Applicability and Note statements and formatting consider human factors and are user-friendly.
- The scheme facilitates upgrading and downgrading of the emergency classification where necessary.

The NRC staff verified 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 or multiple events, and allows for event downgrading

and upgrading based upon the potential risk to the public health and safety. Risk assessments were used appropriately to set the boundaries of the emergency classification levels and ensure that all EALs that trigger the declaration of an emergency classification are in the same range of relative risk. In addition, the NRC staff verified that the proposed EAL scheme is technically complete and consistent with EAL schemes implemented at similarly designed plants.

A summary of the NRC staff's review of specific EALs is provided in section 3.0 of this SE.

To aid in understanding the nomenclature used in this SE, the following conventions are used:

- The scheme's generic information is organized by Recognition Category in the following order:
 - A or R - Abnormal Radiation Levels / Radiological Effluent,
 - C - Cold Shutdown / Refueling System Malfunction,
 - E - Independent Spent Fuel Storage Installation (ISFSI),
 - F - Fission Product Barrier,
 - H - Hazards and Other Conditions Affecting Plant Safety, and
 - S or M - System Malfunction.
- The Recognition Category letter is the first letter for EALs.
- The second letter signifies the emergency classification level:
 - U = Notification of Unusual Event (UE),
 - A = Alert,
 - S = Site Area Emergency (SAE), and
 - G = General Emergency (GE).
- The number denotes the sequential subcategory designation from the plant-specific EAL scheme.

An EAL set refers to EALs within an EAL Recognition Category that include an escalation path for one or more classification levels. Not all EAL Recognition Categories require an EAL set.

This SE uses the numbering system from the proposed plant-specific EAL scheme; however, the numbering system from the generic EAL scheme development guidance contained in NEI 99-01, Revision 7, is annotated in [brackets] to aid in cross-referencing the site-specific EAL numbering convention with that of the guidance.

3.0 TECHNICAL EVALUATION

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

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

The intent of this EAL set is to ensure that an emergency classification is declared upon plant-specific indications of a release of radioactivity (gaseous). The set provides for accident assessments using pre-calculated values based on assumed conditions, real-time parameters, and field monitoring results.

The NRC staff verified that the progression from an Alert to a GE classification level is appropriate and consistent with EAL scheme development guidance.

- RA1 – This EAL addresses a release that results in projected or actual offsite doses greater than 10 millirem (mrem) total effective dose equivalent (TEDE) or 50 mrem thyroid committed dose equivalent (CDE).
- RS1 – This initiating condition addresses a release that results in projected or actual offsite doses greater than 100 mrem TEDE or 500 mrem thyroid CDE.
- RG1 – This initiating condition addresses a release that results in projected or actual offsite doses greater than 1,000 mrem TEDE or 5,000 mrem thyroid CDE.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

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

The intent of this EAL set is to ensure that an emergency classification is declared upon plant-specific indications of potential or actual damage to an irradiated fuel assembly or multiple assemblies. It addresses a lowering of water level over irradiated fuel or fuel uncover (i.e., level below the top of the fuel), a spectrum of fuel handling accidents that result in mechanical damage to irradiated fuel (e.g., a dropped fuel assembly).

The NRC staff verified that the progression from a UE to a GE classification level is appropriate and consistent with EAL scheme development guidance.

- RU2 – This EAL addresses a decrease in water level above irradiated fuel sufficient to cause elevated radiation levels.
- RA2 – This EAL addresses events that have caused imminent or actual damage to an irradiated fuel assembly, or a significant lowering of water level within the spent fuel pool (SFP).
- RS2 – This EAL addresses a significant loss of SFP water inventory control and makeup capability leading to imminent fuel damage.

- RG2 – This EAL addresses a significant loss of SFP water inventory control and makeup capability leading to a prolonged uncover of irradiated fuel.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.1.3 EAL RU3 [AU3]

The intent of this EAL is to ensure that an emergency classification is declared when elevated radiation levels in certain plant rooms and areas preclude or impede personnel from performing actions necessary to maintain normal plant operation or to perform a normal plant cooldown and shutdown. This includes equipment in the control room and the central alarm station. The UE classification level is primarily intended to ensure that the plant emergency response organization (ERO) is considered to support the control room in removing the impediment to normal access, as well as assisting in quantifying potential damage to the fuel. Depending on the nature of the event, escalation of the emergency classification level would be via an EAL in Recognition Category R, C, F or S.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, and instrumentation and setpoints for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

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 (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

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

3.2.1 EAL Set CA1/CS1/CG1 [CA1/CS1/CG1]

The intent of this EAL set is to ensure an emergency classification is declared upon a loss of reactor pressure vessel (RPV) inventory and/or reactor coolant system (RCS) leakage.

The NRC staff verified that the progression from an Alert to a GE classification level is appropriate and consistent with EAL scheme development guidance.

- CA1 – This EAL addresses conditions that are precursors to a loss of the ability to adequately cool irradiated fuel in the RPV (i.e., a precursor to a challenge to the fuel clad barrier).
- CS1 – This EAL addresses a significant and prolonged loss of RPV/RCS inventory control and makeup capability leading to imminent fuel damage.
- CG1 – This EAL addresses the inability to restore and maintain RPV/RCS level above the top of active fuel with containment challenged.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.2.2 EAL CA2 [CA2]

The intent of this EAL is to ensure that an emergency classification is declared upon a loss of available alternating current (AC) power to emergency power electrical buses.

The NRC staff verified that the Alert classification level is appropriate and consistent with EAL scheme development guidance. Escalation of the emergency classification level would be via EALs RS1 or CS1.

- CA2 – This EAL addresses a loss of all AC power that compromises the performance of all safety systems requiring electric power, including those necessary for emergency core cooling, containment heat removal/pressure control, irradiated fuel heat removal, and the ultimate heat sink.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, and ease of upgrading/downgrading for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for the classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

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 (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.2.3 EAL Set CU3/CA3 [CU3/CA3]

The intent of this EAL set is to ensure that an emergency classification is declared based on the inability to effectively monitor key RCS temperature and level indications with escalation to an inability to maintain control of decay heat removal.

The NRC staff verified that the progression from a UE to an Alert classification level is appropriate and consistent with EAL scheme development guidance. Escalation of the emergency classification level would be via EAL RS1 or CS1.

- CU3 – This IC addresses a loss of the instrumentation needed to monitor RCS temperature and RCS level. These indications are necessary to monitor and assure core decay heat removal. During this condition, there is no immediate threat of fuel damage because the core decay heat load has been reduced since the cessation of power operation; however, because these critical parameters cannot be monitored, the condition represents a potential degradation of the level of safety of the plant.
- CA3 – This EAL addresses conditions involving a loss of decay heat removal capability or an addition of heat to the RCS in excess of that which can currently be removed.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, and ease of upgrading/downgrading for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.2.4 EAL CU4 [CU4]

This IC addresses a loss of vital direct current (DC) power which compromises the ability to monitor and control operable safety systems when the plant is in Cold Shutdown or Refueling mode. In these modes, the core decay heat load has been significantly reduced, and coolant system temperatures and pressures are lower; these conditions increase the time available to restore a vital DC bus to service. Thus, this condition is considered to be a potential degradation of the level of safety of the plant. Depending upon the event, escalation of the emergency classification level would be via EAL CA1 or CA3, or an EAL in Recognition Category R.

The NRC staff verified that the numbering, formatting, logical progression, and instrumentation and setpoints for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4).

The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

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 (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.2.5 EAL CU5 [CU5]

The intent of this EAL is to highlight the importance of emergency communications by ensuring that an emergency classification is declared if normal communication methods for onsite and offsite personnel, or with offsite response organizations (OROs), including the NRC, are lost.

This EAL is primarily intended to ensure that key ERO members and OROs are aware of the loss of communications capabilities, the resources necessary to restore communications are mobilized, and compensatory measures are promptly implemented. The NRC staff verified that no escalation path is necessary for this EAL.

The communication methods derived for this EAL are consistent with the overall EAL scheme development guidance.

The NRC staff verified that the numbering, sequencing, formatting, and logical progression for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

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 (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.2.6 EAL CA6 [CA6]

The intent of this EAL is to ensure that an emergency classification is declared when hazardous events lead to potential damage to safety systems. This EAL is primarily intended to ensure that the plant ERO is activated to support the control room in understanding the event impacts and restoring affected safety system equipment to service. Escalation of the emergency classification level would be via EAL RS1 or CS1.

An Alert classification will be made when a hazardous event results in indications of degraded performance to one train of a safety system with either indications of degraded performance on a second safety system train or visible damage to a second safety system train, such that the operability or reliability of the second safety system train is a concern.

The NRC staff verified that the numbering, sequencing, formatting, and logical progression for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

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 (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.2.7 EAL Set CA7/CS7 [CA7/CS7]

The intent of this EAL set is to ensure that an emergency classification is declared based on an event leading to a transfer of plant operations from the Control Room to the Hot Shutdown Panel Area. SNC proposed to clarify when the declaration clock starts which the NRC staff has reviewed and found acceptable.

The NRC staff verified that the progression from an Alert to a SAE classification level is appropriate and consistent with EAL scheme development guidance. Escalation of the emergency classification level would be via IC RG1 or CG1.

- CA7 – This EAL addresses an evacuation of the Control Room that results in transfer of plant control to alternative locations outside the Control Room. The loss of the ability to control the plant from the Control Room is considered to be a potential substantial degradation in the level of plant safety. Following a Control Room evacuation, control of the plant will be transferred to alternative shutdown locations. The necessity to control the plant from outside the Control Room, in addition to responding to the event that required the evacuation of the Control Room, will present challenges to plant operators and other on-shift personnel. Activation of the ERO and emergency response facilities will assist in responding to these challenges.
- CS7 – This EAL addresses an evacuation of the Control Room with a concurrent challenge to the control of the core cooling safety function. The failure to control the core cooling safety function following the transfer of plant control to locations outside the Control Room is a precursor to a challenge to one or more fission product barriers within a relatively short period of time.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, and ease of upgrading/downgrading for this EAL set are consistent with the overall EAL scheme development guidance and address the plant specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses

human factors engineering and user friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG 0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.3 Recognition Category 'E' – Independent Spent Fuel Storage Installation

3.3.1 EAL E-HU1 [E-HU1]

The intent of this EAL is limited to an event that results in damage to the confinement boundary of a storage cask containing irradiated fuel, regardless of the cause. This EAL is intended primarily to ensure that key ERO members and OROs are aware of the cask damage, resources necessary to respond to the event are mobilized, and protective measures, if warranted, are implemented promptly. Security-related events for an ISFSI are covered under EAL HU1 and HA1.

The NRC staff verified that the numbering, sequencing, formatting, and logical progression for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

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 (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.4 Recognition Category 'F' – Fission Product Barrier Matrix

3.4.1 EAL Set FA1/FS1/FG1 [FA1/FS1/FG1]

The intent of this EAL set is to ensure that an emergency classification is declared upon a loss or potential loss of one or more fission product barriers. This EAL set uses plant condition-based criteria as triggers within a particular logic configuration needed to reflect a loss or potential loss of a fission product barrier. Non-passive, LLWRs in the United States have three fission product barriers: fuel cladding, the RCS, and primary containment. Licensees are to develop criteria that provide EAL decision-makers' input into making an event declaration based upon degradation of one or more of these fission product barriers.

Numerous triggers are 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 found in other recognition categories applicable during Hot operating modes. Note that the primary purpose of the Potential Loss criterion is to enable the potential declaration of FS1 or FG1 in advance of

meeting the requirements of other SAE or GE applicable in the hot operating modes if conditions warrant. For example, if primary containment radiation monitoring increases due to fission barrier damage, the RCS Loss criteria would be met when the radiation level increases to approximately the technical specification level and would lead to FA1. Increasing radiation levels would eventually lead to FS1 due to meeting the criteria for a Fuel Clad barrier Loss. If radiation levels continue to increase, eventually the criteria for a Potential Loss of the Containment Barrier would be met. Note that this is a Potential Loss, not a Loss, of the Containment Barrier and, therefore, the release is limited to what can be released through an intact Containment Barrier. Nevertheless, this would lead to a declaration of FG1 so that a protective action recommendation (PAR) can be provided proactively to OROs as the plant conditions are such that the licensee is still in Hot operating modes, with all the corresponding temperature and pressure conditions, and only one barrier is holding back a significant release. All the other thresholds in other recognition categories would typically be limited to a SAE. This is one of the key benefits to the design of the Fission Barrier Matrix, which is different than the development of other recognition categories within the EAL scheme.

The NRC staff verified that the logic, used to determine the appropriate emergency classification, is consistent with the generic EAL scheme development guidance in NEI 99-01, Revision 7. The progression from an Alert to a GE classification level is appropriate and consistent with EAL scheme development guidance.

- FA1 – This EAL addresses any loss or any potential loss of either the fuel clad or RCS barrier.
- FS1 – This EAL addresses loss or potential loss of any two barriers.
- FG1 – This EAL addresses loss of any two barriers and loss or potential loss of the third barrier.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.5 Recognition Category 'H' – Hazards

3.5.1 EAL Set HU1/HA1/HS1 [HU1/HA1/HS1]

The intent of this EAL set is to ensure that an emergency classification is declared based upon a security-related event. 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 in NEI 99-01, Revision 7. Escalation of the emergency classification level would be via an EAL in Recognition Category R, C, F or S.

The NRC staff also verified that the progression from a UE to an SAE classification level is appropriate and consistent with EAL scheme development guidance.

- HU1 – This EAL addresses events that pose a threat to plant personnel or safety system equipment and thus represents a potential degradation in the level of plant safety. A site ISFSI is also within the scope of this IC. Security events which do not meet one of these EALs are adequately addressed by the requirements in 10 CFR Part 73 or 10 CFR 50.72. Security events assessed as hostile actions are classified under EAL HA1 and HS1.
- HA1 – This EAL addresses the occurrence of a hostile action within the owner-controlled area or notification of an aircraft attack threat. This event will require rapid response and assistance due to the possibility of the attack progressing to the protected area, or the need to prepare the plant and staff for a potential aircraft impact.
- HS1 – This EAL addresses the occurrence of a hostile action within the protected area. This event will require rapid response and assistance due to the possibility for damage to plant equipment.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, and ease of upgrading/downgrading for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.5.2 EAL HU2 [HU2]

This EAL addresses a seismic event that results in accelerations at the plant site greater than those specified for an Operating Basis Earthquake (OBE). An earthquake greater than an OBE but less than a Safe Shutdown Earthquake (SSE) should have no significant impact on safety-related systems, structures and components; however, some time may be required for the plant staff to ascertain the actual post-event condition of the plant (e.g., performs walk-downs and post-event inspections). Given the time necessary to perform walk-downs and inspections, and fully understand any impacts, this event represents a potential degradation of the level of safety of the plant. Depending upon the plant mode at the time of the event, escalation of the emergency classification level would be via IC CA6 or SA7.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, and instrumentation and setpoints for this EAL are consistent with the overall EAL scheme

development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

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 (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.5.3 EAL HU3 [HU3]

The intent of this EAL is to address an event involving a release of a hazardous gas that precludes or impedes access to equipment necessary to maintain normal plant operation or required for a normal plant cooldown and shutdown. This condition represents a potential degradation of the level of safety of the plant. A declaration is warranted if entry into the affected room/area is, or may be, procedurally required during the plant operating mode in effect at the time of the gaseous release. The emergency classification is not contingent upon whether entry is actually necessary at the time of the release. Depending on the nature of the event, escalation of the emergency classification level would be via an EAL in Recognition Category R, C, F or S.

The NRC staff verified that the numbering, sequencing, formatting, and logical progression for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

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 (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.5.4 EAL HU4 [HU4]

The intent of this EAL is to ensure that an emergency classification is declared based upon the effect that a fire may have on the facility, which would be indicative of a potential degradation of the level of safety of the plant. This EAL is intended primarily to ensure that key ERO members and OROs are aware of the fire, and post-event damage assessments are implemented promptly. Depending upon the plant mode at the time of the event, escalation of the emergency classification level would be via EAL CA6 or SA7.

The NRC staff verified that the numbering, sequencing, formatting, and logical progression for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is

worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

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 (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.5.5 EAL HU5 [HU5]

The intent of this EAL is to address hazardous events that are considered to represent a potential degradation of the level of safety of the plant. Specifically, this EAL addresses the impact to the safety of the plant from internal or area flooding, difficulties in accessing the site, or from other site-specific hazards. Depending on the nature of the event, escalation of the emergency classification level would be via an EAL in Recognition Category R, C, F or S.

The NRC staff verified that the numbering, sequencing, formatting, and logical progression for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

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 (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.5.6 EAL Set HU6/HA6/HS6/HG6 [HU6/HA6/HS6/HG6]

The intent of this EAL set is to provide decisionmakers with an escalating emergency classification to consider when, in their judgment, entry into the site's emergency plan and mobilization of the licensee's ERO and ORO is warranted.

The NRC staff verified that the progression from a UE to a GE classification level is appropriate and consistent with EAL scheme development guidance.

- HU6 – This EAL addresses unanticipated conditions not addressed explicitly elsewhere but, in the judgement of EAL decision-makers, warrants declaration of an emergency due to conditions existing that are believed to fall under the emergency classification level description for a UE.
- HA6 – This EAL addresses unanticipated conditions not addressed explicitly elsewhere but, in the judgement of EAL decision-makers, warrants declaration of an emergency due to conditions existing that are believed to fall under the emergency classification level description for an Alert.

- HS6 – This EAL addresses unanticipated conditions not addressed explicitly elsewhere but, in the judgement of EAL decision-makers, warrants declaration of an emergency due to conditions existing that are believed to fall under the emergency classification level description for an SAE.
- HG6 – This EAL addresses unanticipated conditions not addressed explicitly elsewhere but, in the judgement of EAL decision-makers, warrants declaration of an emergency due to conditions existing that are believed to fall under the emergency classification level description for a GE.

The NRC staff verified that the numbering, sequencing, formatting, and ease of upgrading/downgrading for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.6 Recognition Category 'S' – System Malfunction

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

The intent of this EAL set is to ensure that an emergency classification is declared based upon a loss of available AC power sources to the emergency buses.

The NRC staff reviewed the licensee's evaluation and justification for plant-specific changes associated with this EAL set and verified that the progression from a UE to a GE classification level is appropriate and consistent with EAL scheme development guidance.

- SU1 – This EAL addresses a prolonged loss of offsite power. The loss of offsite power sources renders the plant more vulnerable to a complete loss of power to AC emergency buses. This condition represents a potential reduction in the level of safety of the plant.
- SA1 – This EAL describes a significant degradation of offsite and onsite AC power sources such that any additional single failure would result in a loss of all AC power to safety systems. During this condition, the margin to a potential fission product barrier challenge is reduced. It thus represents a potential substantial degradation in the level of safety of the plant.
- SS1 – This EAL addresses a total loss of AC power that compromises the performance of all safety systems requiring electric power including those necessary for emergency core cooling, containment heat removal/pressure control, spent fuel heat removal and the ultimate heat sink. In addition, fission product barrier monitoring capabilities may be

degraded under these conditions. This EAL represents a condition that involves actual or likely major failures of plant functions needed for the protection of the public.

- SG1 – This EAL addresses a loss of all power sources to AC emergency buses leading to indications of inadequate core cooling. This condition challenges the RCS and Fuel Clad Barriers and, if further mitigation actions are unsuccessful, the Containment Barrier. Although this EAL may be viewed as redundant to Fission Product Barrier IC FG1, it is included to provide for a timelier escalation of the emergency classification level (i.e., SG1 will likely be met before FG1). This approach should allow additional time for the identification and implementation of offsite protective actions.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4).

The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.6.2 EAL SA2 [SA2]

This EAL addresses the difficulty associated with monitoring rapidly changing plant conditions during a transient without the ability to obtain safety system parameters from within the Control Room. During this condition, the margin to a potential fission product barrier challenge is reduced.

The NRC staff verified that the Alert classification level is appropriate and consistent with EAL scheme development guidance. Escalation of the emergency classification level would be via EAL RS1, CS1 or FS1.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to

10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.6.3 EAL Set SA3/SS3 [SA3/SS3]

The intent of this EAL set is to ensure that an emergency classification is declared based on an event leading to a transfer of plant operations from the Control Room to the Hot Shutdown Panel. SNC proposed to clarify when the declaration clock starts which the staff has reviewed and found acceptable.

The NRC staff verified that the progression from an Alert to a SAE classification level is appropriate and consistent with EAL scheme development guidance. Escalation of the emergency classification level would be via EAL RG1 or FG1.

- SA3 – This EAL addresses an evacuation of the Control Room that results in transfer of plant control to alternative locations outside the Control Room. The loss of the ability to control the plant from the Control Room is considered to be a potential substantial degradation in the level of plant safety
- SS3 – This EAL addresses an evacuation of the Control Room with a concurrent challenge to a fission product barrier. The challenge to a fission product barrier is indicative of an inability to gain control of one or more safety functions following the transfer of plant control to locations outside the Control Room. This condition is a precursor to a challenge to one or more fission product barriers within a relatively short period of time.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.6.4 EAL SU4 [SU4]

The intent of this EAL is to highlight the importance of emergency communications by ensuring that an emergency classification is declared if normal communication methods for onsite and offsite personnel, or with OROs, including the NRC, are lost. This EAL is intended primarily to ensure that key ERO members and OROs are aware of the loss of communications capabilities, the resources necessary to restore communications are mobilized, and compensatory measures are implemented promptly. The NRC staff verified that no escalation path is necessary for this EAL.

The communication methods derived for this EAL are consistent with the overall EAL scheme development guidance.

The NRC staff verified that the numbering, sequencing, formatting, and logical progression for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

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 (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.6.5 EAL SU5 [SU5]

The intent of this EAL is to address a failure of one or more containment penetrations to automatically isolate (close) when required by an actuation signal. It also addresses an event that results in high containment pressure with a concurrent failure of containment pressure control systems. Absent challenges to another fission product barrier, either condition represents potential degradation of the level of safety of the plant.

This EAL is intended primarily to ensure that key ERO members and OROs are aware of significant challenges to containment integrity, and compensatory measures are implemented promptly. This event would escalate to a SAE per EAL FS1 if there were a concurrent Loss or Potential Loss of either the Fuel Clad or RCS fission product barriers.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, and instrumentation and setpoints for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

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 (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.6.6 EAL Set SS6/SG6 [SS6/SG6]

The intent of this EAL set is to ensure that an emergency classification is declared when a loss of DC power occurs, as this condition compromises the ability of the licensee to monitor and control the removal of decay heat.

The NRC staff verified that the progression from an SAE to a GE classification level is appropriate and consistent with EAL scheme development guidance.

- SS6 – This EAL addresses a loss of Vital DC power which compromises the ability to monitor and control safety systems. This condition involves a major failure of plant functions needed for the protection of the public.
- SG6 – This EAL addresses a concurrent and extended loss of both AC and Vital DC power. A loss of all AC power compromises the performance of all safety systems requiring electric power including those necessary for emergency core cooling, containment heat removal/pressure control, spent fuel heat removal and the ultimate heat sink. A loss of Vital DC power compromises the ability to monitor and control safety systems. A sustained loss of both AC and DC power will lead to multiple challenges to fission product barriers.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.6.7 EAL SA7 [SA7]

This EAL addresses a hazardous event of sufficient magnitude to cause degraded performance to a safety system train with either 1) visible damage to a second safety system train or 2) indications of degraded performance on a second safety system train. The trains affected may be on the same safety system or different safety systems. Commercial nuclear power plant safety systems are typically comprised of two or more separate and redundant trains of equipment in accordance with site-specific design criteria. This permits a plant to respond to an event affecting a single train without compromising public health and safety from radiological events. Nonetheless, a hazardous event of sufficient magnitude to impact two safety system trains has the potential to significantly reduce the margin to a loss or potential loss of a fission product barrier and therefore represents an actual or potential substantial degradation of the level of safety of the plant. Escalation of the emergency classification level would be via EAL RS1 or FS1.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, and instrumentation and setpoints for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this

classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

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 (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.6.8 EAL Set SU8/SS8 [SU8/SS8]

The intent of this EAL set is to ensure that an emergency classification is declared based upon the effect that a failure of the reactor protection system (RPS) may have on the plant.

The NRC staff verified that the progression from a UE to an SAE classification level is appropriate and consistent with EAL scheme development guidance. Escalation of the emergency classification level would be via EAL RG1 or FG1.

- SU8 – This EAL addresses failure of the RPS to initiate or complete an automatic or manual reactor trip that results in a reactor shutdown, and subsequent operator manual actions taken at the reactor control consoles to shut down the reactor are also unsuccessful. Under these conditions, operators will take prompt actions to shut down the reactor from a location outside the Control Room (e.g., opening the reactor trip breakers). This EAL set does not need an Alert classification as other plant conditions will appropriately result in an Alert classification.
- SS8 – This EAL addresses a failure of the RPS to initiate or complete an automatic or manual reactor trip that results in a reactor shutdown, all subsequent operator actions to manually shutdown the reactor are unsuccessful, and continued power generation is challenging the capability to adequately remove heat from the core and/or the RCS. This condition will lead to fuel damage if additional mitigation actions are unsuccessful and thus warrants the declaration of a Site Area Emergency. an event where the RPS fails to automatically shut down the reactor when required and operator actions taken at the reactor control consoles to manually shut down the reactor are unsuccessful.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.7 Review Summary

The NRC staff has reviewed the technical bases for the proposed EAL scheme, the modifications from NEI 99-01, Revision 7, 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 7, 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 verified that these modifications do not alter the intent of any specific EAL within a set, recognition category, or within the entire EAL scheme described in NEI 99-01, Revision 7. Therefore, the NRC finds that proposed changes meet the requirements in Appendix E to 10 CFR Part 50 and the planning standard 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 or multiple events, and allows for event downgrading and upgrading based upon the potential risk to the public health and safety. Risk assessments were used appropriately 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 determined that the proposed EAL scheme is technically complete, accurate, and consistent with EAL schemes implemented at similarly designed plants.

The NRC staff verified that the instrumentation and set points derived for this proposed EAL scheme are consistent with the overall EAL scheme development guidance, address the plant-specific implementation strategies provided, and are consistent with a standard EAL scheme.

Based on the above, the NRC staff concludes that SNC'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 NRC staff concludes that the licensee's site-specific EAL basis document provided by Attachment 2 of the letter dated August 7, 2026, is acceptable for implementation. The NRC staff expects implementation of the complete approved EAL Basis Document.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the State of Alabama officials were notified on August 7, 2026. On August 10, 2026, the State officials of Alabama stated that they had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

This action relates to changes to requirements for emergency planning. The NRC staff has determined that any ground disturbance is limited to previously disturbed areas. Additionally, the NRC staff has determined that the action involves no significant change in the types or significant increase in the amounts of any effluents that may be released offsite, no significant increase in individual or cumulative public or occupational radiation exposure, and no significant increase in the potential for or consequences from radiological accidents. Finally, the NRC staff has determined that a categorical exclusion applies and that special circumstances under 10 CFR 51.22, "Categorical exclusions," are not present that would preclude reliance on the categorical exclusion. Accordingly, this action meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(d)(4). Pursuant to 10 CFR 51.22, no environmental impact

statement or environmental assessment need be prepared in connection with the action.

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.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO

AMENDMENT NO. 334 TO SUBSEQUENT RENEWED FACILITY OPERATING LICENSE NO.

DPR-57

AMENDMENT NO. 279 TO SUBSEQUENT RENEWED FACILITY OPERATING LICENSE NO.

NPF-5

EDWIN I. HATCH NUCLEAR PLANT, UNITS 1 AND 2

SOUTHERN NUCLEAR OPERATING COMPANY

DOCKET NOS. 50-321, 50-366, AND 72-36

1.0 INTRODUCTION

By application dated September 30, 2025 (Agencywide Documents and Access Management System Accession No. ML25273A375), supplemented by letters dated February 10 (ML26041A355) and August 7, 2026 (ML26219A256), Southern Nuclear Operating Company (SNC, the licensee) requested U.S. Nuclear Regulatory Commission (NRC) approval of the revised emergency action level (EAL) scheme for the Edwin I. Hatch Nuclear Plant (Hatch), Units 1 and 2.

The proposed amendment would revise the EAL scheme to adopt the Nuclear Energy Institute's (NEI's) revised EAL scheme described in NEI 99-01, Revision 7, "Development of Emergency Action Levels for Non-Passive Reactors," September 2024 (ML24274A312). Revision 7 of NEI 99-01 was endorsed by the NRC staff by Regulatory Guide (RG) 1.101, Revision 7, September 2025 (ML25065A240). The current EAL scheme is based on the guidance established in NEI 99-01, Revision 6, "Methodology for Development of Emergency Action Levels," November 2012 (ML12326A805).

A notice of consideration of proposed issuance of amendments with proposed no significant hazards consideration determination was published in the *Federal Register* on April 14, 2026 (91 FR 19207), and there has been no public comment on such determination. The supplemental letters dated February 10 and August 7, 2026, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the NRC staff's original proposed no significant hazards consideration determination as published in this notice.

2.0 REGULATORY EVALUATION

The applicable regulations and guidance for the emergency plans are provided in sections 2.1 and 2.2 of this safety evaluation (SE).

2.1 Regulations

Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.47, "Emergency plans," sets forth emergency plan requirements for nuclear power plant facilities. The regulations in 10 CFR 50.47(a) require a determination that reasonable assurance of adequate protection protective measures can and will be taken in the event of a radiological emergency (reasonable assurance determination) prior to the issuance of an operating license or early site permit, as applicable.

Section 50.47(b) establishes the planning standards that the onsite and offsite emergency response plans must meet for NRC staff to make a finding that there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. Regulation 50.47(b)(4) requires a standard emergency classification and action level scheme be in use by the nuclear facility licensee, and that State and local response plans rely on the information provided by the licensee for minimum initial response measures.

The NRC notes that the requirement for a standard emergency classification and action level scheme ensures that implementation methods are reasonably consistent for a specific reactor and containment design while also allowing licensee modifications necessary to address unique design considerations as well as licensee preferences.

Section IV.B of Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities," to 10 CFR Part 50 states, in part, that, "A licensee desiring to change its entire emergency action level scheme shall submit an application for an amendment to its license and receive NRC approval before implementing the change," and establishes additional requirements for an EAL scheme. This section also specifies an annual review by State and local governmental authorities as well as the requirement for NRC prior approval prior to implementation of a new EAL scheme.

2.2 Guidance

EAL development guidance was initially established in response to the lessons learned from the Three-Mile Island event. A lack of a standardized, objective, and technically based emergency classification system led to communication breakdowns, inaccurate or incomplete plant assessments, and subjective notifications. An EAL scheme was developed to eliminate ambiguity, ensure consistent emergency communication, require objective emergency classification thresholds, and support coordinated offsite response. The implementation of the onsite and offsite (State and local) emergency plans only occurs when an EAL is declared thus making EAL schemes a significant part of the onsite and offsite emergency plans.

EAL scheme development guidance has been revised several times to incorporate lessons learned. Note that the naming convention for NRC approved EAL scheme development guidance changed with the endorsement of NEI 99-01 EAL scheme for non-passive large light water reactor (LLWR) designs.

- Effective Revision 0, (initial) scheme development guidance – NRC Generic Letter (GL) 79 50, “Emergency Plans Submittal Dates,” dated October 10, 1979 (ML031320278).
- Effective Revision 1, scheme development guidance – NRC NUREG 0654/FEMA REP 1, Revision 1, “Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants,” November 1980 (ML040420012).
- Effective Revision 2, scheme development guidance - Nuclear Management and Resources Council, Inc., NUMARC/NESP-007, Revision 2, “Methodology for Development of Emergency Action Levels,” January 1992 (ML041120174).
- Effective revision 3, scheme development guidance – This was to be a revision to NUMARC/NESP-007 but was cancelled as a parallel project (NEI 99-01) to completely revise the EAL scheme development methodology was chosen to be the best approach for EAL scheme development guidance. As a result, there is no effective revision 3 of NRC endorsed EAL scheme development guidance.
- NEI 99 01, Revision 4, “Methodology for Development of Emergency Action Levels,” January 2003 (ML030230250). Note that all future non-passive EAL scheme development guidance for non-passive LLWR designs will continue to use NEI 99-01 with the next sequential revision number for ease of use.
- NEI 99 01, Revision 5, “Methodology for Development of Emergency Action Levels,” February 2008 (ML080450149).
- NEI 99 01, Revision 6, “Development of Emergency Action Levels for Non-Passive Reactors,” November 2012 (ML12326A805).
- NEI 99 01, Revision 7, “Development of Emergency Action Levels for Non-Passive Reactors,” September 2024 (ML24274A312).

This guidance endorsed by NRC Regulatory Guide (RG) 1.101 (ML090440294) considered the criteria and recommendations in Revision 1 of NUREG-0654/FEMA-REP-1, Revision 1 to be approaches acceptable to the NRC for the development of an EAL scheme. Revision 7 of NEI 99-01 was endorsed by the NRC staff by RG 1.101, Revision 7, September 2025 (ML25065A240).

Although the EAL development guidance contained in NEI 99-01 is generic and may not be entirely applicable for some non-passive, LLWR designs, it 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. Licensees may choose to develop plant-specific EAL schemes using NEI 99-01, Revision 7, with appropriate plant-specific alterations as applicable.

2.3 NRC Staff Review – Key Characteristics of an Effective EAL Scheme

In its application dated September 30, 2025, as supplemented by letters dated February 10 and August 7, 2026, the licensee proposes to revise their EAL scheme to one based on NEI 99-01, Revision 7. In its application, the licensee submitted the proposed EAL scheme, the technical basis containing an evaluation and rationale for each proposed EAL change, and a comparison matrix providing a line-by-line comparison of the proposed Initiating Conditions, mode applicability, and EAL wording to that found in NEI 99-01, Revision 7. The comparison matrix also included a description of global changes applicable to the EAL scheme and a justification for any changes from NEI 99-01, Revision 7.

The NRC staff reviewed the information provided by the licensee to verify that the proposed EAL scheme is consistent with the guidance provided in NEI 99-01, Revision 7, to assure that the proposed EAL scheme meets the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4). The NRC staff reviewed the proposed site-specific EAL scheme, technical basis, comparison matrix, and all additional information provided in the licensee's application and supplemental letters. The NRC staff found that the proposed EALs have modifications from the NEI 99-01, Revision 7, guidance due to specific plant designs and licensee preference.

Based on its review of the application, the NRC staff has determined that an audit was needed to review the proposed license amendment request (LAR) justification supporting revision to the EAL scheme, and to determine if additional information may need to be docketed for the NRC to complete its review. The NRC issued an audit plan (ML26075B149) on March 30, 2026, and issued its audit summary (ML26223A533), on August 12, 2026, respectively.

The NRC staff verified that the instrumentation and set points derived for this proposed EAL scheme are consistent with the overall EAL scheme development guidance, address the plant-specific implementation strategies provided, and are consistent with a standard EAL scheme.

The NRC staff also verified that the EAL Basis Document contained the applicable guidance from Section 5.0, "Guidance on Making Emergency Classifications," of NEI 99-01 Revision 7.

Key Characteristics of an Effective EAL Scheme

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:

- The Initiating Conditions (ICs), EALs, Operating Mode Applicability criteria, Notes and Basis information are consistent with industry guidance. While the actual wording may be different, the classification intent is maintained. With respect to Recognition Category F, a site-specific scheme must include some type of user-aid to facilitate timely and accurate classification of fission product barrier losses and/or potential losses. The user-aid logic must be consistent with the classification logic presented in Section 9 of NEI 99-01 Revision 7.
- The ICs, EALs, Operating Mode Applicability criteria, Notes and Basis information are technically complete and accurate (i.e., they contain the information necessary to make a correct classification).
- EAL statements use objective criteria and observable values.
- ICs, EALs, Operating Mode Applicability and Note statements and formatting consider human factors and are user-friendly.
- The scheme facilitates upgrading and downgrading of the emergency classification where necessary.

The NRC staff verified independently 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 or multiple events, and

allows for event downgrading and upgrading based upon the potential risk to the public health and safety. Risk assessments were used appropriately to set the boundaries of the emergency classification levels and ensure that all EALs that trigger the declaration of an emergency classification are in the same range of relative risk.

In addition, the NRC staff verified independently that the proposed EAL scheme is technically complete and consistent with EAL schemes implemented at similarly designed plants.

A summary of the NRC staff's review of specific EALs is provided in Section 3.0 of this SE.

To aid in understanding the nomenclature used in this safety evaluation, the following conventions are used:

- The scheme's generic information is organized by Recognition Category in the following order:
 - A or R - Abnormal Radiation Levels / Radiological Effluent,
 - C - Cold Shutdown / Refueling System Malfunction,
 - E - Independent Spent Fuel Storage Installation (ISFSI),
 - F - Fission Product Barrier,
 - H - Hazards and Other Conditions Affecting Plant Safety, and
 - S or M - System Malfunction.
- The Recognition Category letter is the first letter for EALs.
- The second letter signifies the emergency classification level:
 - U = Notification of Unusual Event (UE),
 - A = Alert,
 - S = Site Area Emergency (SAE), and
 - G = General Emergency (GE).
- The number denotes the sequential subcategory designation from the plant-specific EAL scheme.

An EAL set refers to EALs within an EAL Recognition Category that include an escalation path for one or more classification levels. Not all EAL Recognition Categories require an EAL set.

This SE uses the numbering system from the proposed plant-specific EAL scheme; however, the numbering system from the generic EAL scheme development guidance contained in NEI 99-01, Revision 7, is annotated in [brackets] to aid in cross-referencing the site-specific EAL numbering convention with that of the guidance.

3.0 TECHNICAL EVALUATION

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

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

The intent of this EAL set is to ensure that an emergency classification is declared upon

plant-specific indications of a release of radioactivity (gaseous). The set provides for accident assessments using pre-calculated values based on assumed conditions, real-time parameters, and field monitoring results.

The NRC staff verified that the progression from an Alert to a GE classification level is appropriate and consistent with EAL scheme development guidance.

- RA1 – This EAL addresses a release that results in projected or actual offsite doses greater than 10 millirem (mrem) total effective dose equivalent (TEDE) or 50 mrem thyroid committed dose equivalent (CDE).
- RS1 – This initiating condition addresses a release that results in projected or actual offsite doses greater than 100 mrem TEDE or 500 mrem thyroid CDE.
- RG1 – This initiating condition addresses a release that results in projected or actual offsite doses greater than 1,000 mrem TEDE or 5,000 mrem thyroid CDE.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

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

The intent of this EAL set is to ensure that an emergency classification is declared upon plant-specific indications of potential or actual damage to an irradiated fuel assembly or multiple assemblies. It addresses a lowering of water level over irradiated fuel or fuel uncover (i.e., level below the top of the fuel), a spectrum of fuel handling accidents that result in mechanical damage to irradiated fuel (e.g., a dropped fuel assembly).

The NRC staff has verified that the progression from a UE to a GE classification level is appropriate and consistent with EAL scheme development guidance.

- RU2 – This EAL addresses a decrease in water level above irradiated fuel sufficient to cause elevated radiation levels.
- RA2 – This EAL addresses events that have caused imminent or actual damage to an irradiated fuel assembly, or a significant lowering of water level within the spent fuel pool (SFP).

- RS2 – This EAL addresses a significant loss of SFP water inventory control and makeup capability leading to imminent fuel damage.
- RG2 – This EAL addresses a significant loss of SFP water inventory control and makeup capability leading to a prolonged uncover of irradiated fuel.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.1.3 EAL RU3 [AU3]

The intent of this EAL is to ensure that an emergency classification is declared when elevated radiation levels in certain plant rooms and areas preclude or impede personnel from performing actions necessary to maintain normal plant operation or to perform a normal plant cooldown and shutdown. This includes equipment in the control room and the central alarm station. The UE classification level is primarily intended to ensure that the plant emergency response organization (ERO) is considered to support the control room in removing the impediment to normal access, as well as assisting in quantifying potential damage to the fuel. Depending on the nature of the event, escalation of the emergency classification level would be via an EAL in Recognition Category R, C, F or S.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, and instrumentation and setpoints for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

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 (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

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

3.2.1 EAL Set CA1/CS1/CG1 [CA1/CS1/CG1]

The intent of this EAL set is to ensure an emergency classification is declared upon a loss of reactor pressure vessel (RPV) inventory and/or reactor coolant system (RCS) leakage.

The NRC staff verified that the progression from an Alert to a GE classification level is appropriate and consistent with EAL scheme development guidance.

- CA1 – This EAL addresses conditions that are precursors to a loss of the ability to adequately cool irradiated fuel in the RPV (i.e., a precursor to a challenge to the fuel clad barrier).
- CS1 – This EAL addresses a significant and prolonged loss of RPV/RCS inventory control and makeup capability leading to imminent fuel damage.
- CG1 – This EAL addresses the inability to restore and maintain RPV/RCS level above the top of active fuel with containment challenged.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.2.2 EAL CA2 [CA2]

The intent of this EAL is to ensure that an emergency classification is declared upon a loss of available alternating current (AC) power to emergency power electrical buses.

The NRC staff verified that the Alert classification level is appropriate and consistent with EAL scheme development guidance. Escalation of the emergency classification level would be via EALs RS1 or CS1.

- CA2 – This EAL addresses a loss of all AC power that compromises the performance of all safety systems requiring electric power, including those necessary for emergency core cooling, containment heat removal/pressure control, irradiated fuel heat removal, and the ultimate heat sink.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, and ease of upgrading/downgrading for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for the classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

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 (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.2.3 EAL Set CU3/CA3 [CU3/CA3]

The intent of this EAL set is to ensure that an emergency classification is declared based on the inability to effectively monitor key RCS temperature and level indications with escalation to an inability to maintain control of decay heat removal.

The NRC staff verified that the progression from a UE to an Alert classification level is appropriate and consistent with EAL scheme development guidance. Escalation of the emergency classification level would be via EAL RS1 or CS1.

- CU3 – This IC addresses a loss of the instrumentation needed to monitor RCS temperature and RCS level. These indications are necessary to monitor and assure core decay heat removal. During this condition, there is no immediate threat of fuel damage because the core decay heat load has been reduced since the cessation of power operation; however, because these critical parameters cannot be monitored, the condition represents a potential degradation of the level of safety of the plant.
- CA3 – This EAL addresses conditions involving a loss of decay heat removal capability or an addition of heat to the RCS in excess of that which can currently be removed.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, and ease of upgrading/downgrading for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654, and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

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3.2.4 EAL CU4 [CU4]

This IC addresses a loss of vital direct current (DC) power which compromises the ability to monitor and control operable safety systems when the plant is in Cold Shutdown or Refueling mode. In these modes, the core decay heat load has been significantly reduced, and coolant system temperatures and pressures are lower; these conditions increase the time available to restore a vital DC bus to service. Thus, this condition is considered to be a potential degradation of the level of safety of the plant. Depending upon the event, escalation of the emergency classification level would be via EAL CA1 or CA3, or an EAL in Recognition Category R.

The NRC staff verified that the numbering, formatting, logical progression, and instrumentation and setpoints for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

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 (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.2.5 EAL CU5 [CU5]

The intent of this EAL is to highlight the importance of emergency communications by ensuring that an emergency classification is declared if normal communication methods for onsite and offsite personnel, or with offsite response organizations (OROs), including the NRC, are lost. This EAL is intended primarily to ensure that key ERO members and OROs are aware of the loss of communications capabilities, the resources necessary to restore communications are mobilized, and compensatory measures are implemented promptly. The NRC staff verified that no escalation path is necessary for this EAL.

The communication methods derived for this EAL are consistent with the overall EAL scheme development guidance.

The NRC staff verified that the numbering, sequencing, formatting, and logical progression for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

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 (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.2.6 EAL CA6 [CA6]

The intent of this EAL is to ensure that an emergency classification is declared when hazardous events lead to potential damage to safety systems. This EAL is intended primarily to ensure that the plant ERO is activated to support the control room in understanding the event impacts and restoring affected safety system equipment to service. Escalation of the emergency classification level would be via EAL RS1 or CS1.

An Alert classification will be made when a hazardous event results in indications of degraded performance to one train of a safety system with either indications of degraded performance on a second safety system train or visible damage to a second safety system train, such that the operability or reliability of the second safety system train is a concern.

The NRC staff verified that the numbering, sequencing, formatting, and logical progression for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

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 (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.2.7 EAL Set CA7/CS7 [CA7/CS7]

The intent of this EAL set is to ensure that an emergency classification is declared based on an event leading to a transfer of plant operations from the Control Room to the Hot Shutdown Panel Area. SNC proposed to clarify when the declaration clock starts which the staff has reviewed and found acceptable.

The NRC staff verified that the progression from an Alert to a SAE classification level is appropriate and consistent with EAL scheme development guidance. Escalation of the emergency classification level would be via IC RG1 or CG1.

- CA7 – This EAL addresses an evacuation of the Control Room that results in transfer of plant control to alternative locations outside the Control Room. The loss of the ability to control the plant from the Control Room is considered to be a potential substantial degradation in the level of plant safety. Following a Control Room evacuation, control of the plant will be transferred to alternative shutdown locations. The necessity to control the plant from outside the Control Room, in addition to responding to the event that required the evacuation of the Control Room, will present challenges to plant operators and other on-shift personnel. Activation of the ERO and emergency response facilities will assist in responding to these challenges.
- CS7 – This EAL addresses an evacuation of the Control Room with a concurrent challenge to the control of the core cooling safety function. The failure to control the core

cooling safety function following the transfer of plant control to locations outside the Control Room is a precursor to a challenge to one or more fission product barriers within a relatively short period of time.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, and ease of upgrading/downgrading for this EAL set are consistent with the overall EAL scheme development guidance and address the plant specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG 0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

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

3.3.1 EAL E-HU1 [E-HU1]

The intent of this EAL is limited to an event that results in damage to the confinement boundary of a storage cask containing irradiated fuel, regardless of the cause. This EAL is intended primarily to ensure that key ERO members and OROs are aware of the cask damage, resources necessary to respond to the event are mobilized, and protective measures, if warranted, are promptly implemented. Security-related events for an ISFSI are covered under EAL HU1 and HA1.

The NRC staff verified that the numbering, sequencing, formatting, and logical progression for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

Based on the above, 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 (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.4 Recognition Category 'F' – Fission Product Barrier Matrix

3.4.1 EAL Set FA1/FS1/FG1 [FA1/FS1/FG1]

The intent of this EAL set is to ensure that an emergency classification is declared upon a loss or potential loss of one or more fission product barriers. This EAL set uses plant condition-based criteria as triggers within a particular logic configuration needed to reflect a loss or potential loss of a fission product barrier. Non-passive, LLWRs in the United States have

three fission product barriers: fuel cladding, the RCS, and primary containment. Licensees are to develop criteria that provide EAL decision-makers' input into making an event declaration based upon degradation of one or more of these fission product barriers.

There are numerous triggers used as logic inputs to decide on the appropriate classification based upon the number of loss and/or potential loss indicators that are triggered for each barrier. By design, these indicators are redundant with other similar indicators in other recognition categories applicable in Hot operating modes. Note that the primary purpose of the Potential Loss criterion is to enable the potential declaration of FS1 or FG1 in advance of meeting the requirements of other SAE or GE applicable in the hot operating modes if conditions warrant. For example, if primary containment radiation monitoring increases due to fission barrier damage, the RCS Loss criteria would be met when the radiation level increases to approximately the technical specification level and would lead to FA1. Increasing radiation levels would eventually lead to FS1 due to meeting the criteria for a Fuel Clad barrier Loss. If radiation levels continue to increase, eventually the criteria for a Potential Loss of the Containment Barrier would be met. Note that this is a Potential Loss, not a Loss, of the Containment Barrier and, therefore, the release is limited to what can be released through an intact Containment Barrier. Nevertheless, this would lead to a declaration of FG1 so that a protective action recommendation (PAR) can be proactively provided to OROs as the plant conditions are such that the licensee is still in Hot operating modes, with all the corresponding temperature and pressure conditions, and only one barrier is holding back a significant release. All the other thresholds in other recognition categories would typically be limited to a SAE. This is one of the key benefits to the design of the Fission Barrier Matrix, which is different than the development of other recognition categories within the EAL scheme.

The NRC staff verified that the logic, used to determine the appropriate emergency classification, is consistent with the generic EAL scheme development guidance in NEI 99-01, Revision 7. The progression from an Alert to a GE classification level is appropriate and consistent with EAL scheme development guidance.

- FA1 – This EAL addresses any loss or any potential loss of either the fuel clad or RCS barrier.
- FS1 – This EAL addresses loss or potential loss of any two barriers.
- FG1 – This EAL addresses loss of any two barriers and loss or potential loss of the third barrier.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.5 Recognition Category 'H' – Hazards

3.5.1 EAL Set HU1/HA1/HS1 [HU1/HA1/HS1]

The intent of this EAL set is to ensure that an emergency classification is declared based upon a security-related event. 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 in NEI 99-01, Revision 7. Escalation of the emergency classification level would be via an EAL in Recognition Category R, C, F or S.

The NRC staff also verified that the progression from a UE to an SAE classification level is appropriate and consistent with EAL scheme development guidance.

- HU1 – This EAL addresses events that pose a threat to plant personnel or safety system equipment and thus represents a potential degradation in the level of plant safety. A site SFSI is also within the scope of this IC. Security events which do not meet one of these EALs are adequately addressed by the requirements in 10 CFR Part 73 or 10 CFR 50.72. Security events assessed as hostile actions are classified under EAL HA1 and HS1.
- HA1 – This EAL addresses the occurrence of a hostile action within the owner-controlled area or notification of an aircraft attack threat. This event will require rapid response and assistance due to the possibility of the attack progressing to the protected area, or the need to prepare the plant and staff for a potential aircraft impact.
- HS1 – This EAL addresses the occurrence of a hostile action within the protected area. This event will require rapid response and assistance due to the possibility for damage to plant equipment.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, and ease of upgrading/downgrading for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.5.2 EAL HU2 [HU2]

This EAL addresses a seismic event that results in accelerations at the plant site greater than those specified for an Operating Basis Earthquake (OBE). An earthquake greater than an OBE but less than a Safe Shutdown Earthquake (SSE) should have no significant impact on safety-related systems, structures and components; however, some time may be required for the plant staff to ascertain the actual post-event condition of the plant (e.g., performs walk-downs and post-event inspections). Given the time necessary to perform walk-downs and inspections, and fully understand any impacts, this event represents a potential degradation of the level of safety of the plant. Depending upon the plant mode at the time of the event, escalation of the emergency classification level would be via IC CA6 or SA7.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, and instrumentation and setpoints for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

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 (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.5.3 EAL HU3 [HU3]

The intent of this EAL is to address an event involving a release of a hazardous gas that precludes or impedes access to equipment necessary to maintain normal plant operation or required for a normal plant cooldown and shutdown. This condition represents a potential degradation of the level of safety of the plant. A declaration is warranted if entry into the affected room/area is, or may be, procedurally required during the plant operating mode in effect at the time of the gaseous release. The emergency classification is not contingent upon whether entry is actually necessary at the time of the release. Depending on the nature of the event, escalation of the emergency classification level would be via an EAL in Recognition Category R, C, F or S.

The NRC staff verified that the numbering, sequencing, formatting, and logical progression for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

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 (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.5.4 EAL HU4 [HU4]

The intent of this EAL is to ensure that an emergency classification is declared based upon the effect that a fire may have on the facility, which would be indicative of a potential degradation of the level of safety of the plant. This EAL is intended primarily to ensure that key ERO members and OROs are aware of the fire, and post-event damage assessments are implemented promptly. Depending upon the plant mode at the time of the event, escalation of the emergency classification level would be via EAL CA6 or SA7.

The NRC staff verified that the numbering, sequencing, formatting, and logical progression for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

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 (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.5.5 EAL HU5 [HU5]

The intent of this EAL is to address hazardous events that are considered to represent a potential degradation of the level of safety of the plant. Specifically, this EAL addresses the impact to the safety of the plant from internal or area flooding, difficulties in access the site, or from other site-specific hazards. Depending on the nature of the event, escalation of the emergency classification level would be via an EAL in Recognition Category R, C, F or S.

The NRC staff verified that the numbering, sequencing, formatting, and logical progression for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

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 (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.5.6 EAL Set HU6/HA6/HS6/HG6 [HU6/HA6/HS6/HG6]

The intent of this EAL set is to provide decisionmakers with an escalating emergency classification to consider when, in their judgment, entry into the site's emergency plan and mobilization of the licensee's ERO and ORO is warranted.

The NRC staff verified that the progression from a UE to a GE classification level is appropriate and consistent with EAL scheme development guidance.

- HU6 – This EAL addresses unanticipated conditions not addressed explicitly elsewhere but, in the judgement of EAL decision-makers, warrants declaration of an emergency due to conditions existing that are believed to fall under the emergency classification level description for a UE.
- HA6 – This EAL addresses unanticipated conditions not addressed explicitly elsewhere but, in the judgement of EAL decision-makers, warrants declaration of an emergency due to conditions existing that are believed to fall under the emergency classification level description for an Alert.
- HS6 – This EAL addresses unanticipated conditions not addressed explicitly elsewhere but, in the judgement of EAL decision-makers, warrants declaration of an emergency due to conditions existing that are believed to fall under the emergency classification level description for an SAE.
- HG6 – This EAL addresses unanticipated conditions not addressed explicitly elsewhere but, in the judgement of EAL decision-makers, warrants declaration of an emergency due to conditions existing that are believed to fall under the emergency classification level description for a GE.

The NRC staff verified that the numbering, sequencing, formatting, and ease of upgrading/downgrading for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.6 Recognition Category 'S' – System Malfunction

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

The intent of this EAL set is to ensure that an emergency classification is declared based upon a loss of available AC power sources to the emergency buses.

The NRC staff reviewed the licensee's evaluation and justification for plant-specific changes associated with this EAL set and verified that the progression from a UE to a GE classification level is appropriate and consistent with EAL scheme development guidance.

- SU1 – This EAL addresses a prolonged loss of offsite power. The loss of offsite power sources renders the plant more vulnerable to a complete loss of power to AC emergency buses. This condition represents a potential reduction in the level of safety of the plant.
- SA1 – This EAL describes a significant degradation of offsite and onsite AC power sources such that any additional single failure would result in a loss of all AC power to safety systems. During this condition, the margin to a potential fission product barrier challenge is reduced. It thus represents a potential substantial degradation in the level of safety of the plant.
- SS1 – This EAL addresses a total loss of AC power that compromises the performance of all safety systems requiring electric power including those necessary for emergency core cooling, containment heat removal/pressure control, spent fuel heat removal and the ultimate heat sink. In addition, fission product barrier monitoring capabilities may be degraded under these conditions. This EAL represents a condition that involves actual or likely major failures of plant functions needed for the protection of the public.
- SG1 – This EAL addresses a loss of all power sources to AC emergency buses leading to indications of inadequate core cooling. This condition challenges the RCS and Fuel Clad Barriers and, if further mitigation actions are unsuccessful, the Containment Barrier. Although this EAL may be viewed as redundant to Fission Product Barrier IC FG1, it is included to provide for a timelier escalation of the emergency classification level (i.e., SG1 will likely be met before FG1). This approach should allow additional time for the identification and implementation of offsite protective actions.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.6.2 EAL SA2 [SA2]

This EAL addresses the difficulty associated with monitoring rapidly changing plant conditions during a transient without the ability to obtain safety system parameters from within the Control Room. During this condition, the margin to a potential fission product barrier challenge is reduced.

The NRC staff verified that the Alert classification level is appropriate and consistent with EAL scheme development guidance. Escalation of the emergency classification level would be via EAL RS1, CS1 or FS1.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.6.3 EAL Set SA3/SS3 [SA3/SS3]

The intent of this EAL set is to ensure that an emergency classification is declared based on an event leading to a transfer of plant operations from the Control Room to the Hot Shutdown Panel. SNC proposed to clarify when the declaration clock starts which the staff has reviewed and found acceptable.

The NRC staff verified that the progression from an Alert to a SAE classification level is appropriate and consistent with EAL scheme development guidance. Escalation of the emergency classification level would be via EAL RG1 or FG1.

- SA3 – This EAL addresses an evacuation of the Control Room that results in transfer of plant control to alternative locations outside the Control Room. The loss of the ability to control the plant from the Control Room is considered to be a potential substantial degradation in the level of plant safety
- SS3 – This EAL addresses an evacuation of the Control Room with a concurrent challenge to a fission product barrier. The challenge to a fission product barrier is indicative of an inability to gain control of one or more safety functions following the transfer of plant control to locations outside the Control Room. This condition is a precursor to a challenge to one or more fission product barriers within a relatively short period of time.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above)

and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.6.4 EAL SU4 [SU4]

The intent of this EAL is to highlight the importance of emergency communications by ensuring that an emergency classification is declared if normal communication methods for onsite and offsite personnel, or with OROs, including the NRC, are lost.

This EAL is intended primarily to ensure that key ERO members and OROs are aware of the loss of communications capabilities, the resources necessary to restore communications are mobilized, and compensatory measures are implemented promptly. The NRC staff verified that no escalation path is necessary for this EAL. The communication methods derived for this EAL are consistent with the overall EAL scheme development guidance.

The NRC staff verified that the numbering, sequencing, formatting, and logical progression for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

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 (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.6.5 EAL Set SS6/SG6 [SS6/SG6]

The intent of this EAL set is to ensure that an emergency classification is declared when a loss of DC power occurs, as this condition compromises the ability of the licensee to monitor and control the removal of decay heat.

The NRC staff verified that the progression from an SAE to a GE classification level is appropriate and consistent with EAL scheme development guidance.

- SS6 – This EAL addresses a loss of Vital DC power which compromises the ability to monitor and control safety systems. This condition involves a major failure of plant functions needed for the protection of the public.
- SG6 – This EAL addresses a concurrent and extended loss of both AC and Vital DC power. A loss of all AC power compromises the performance of all safety systems requiring electric power including those necessary for emergency core cooling, containment heat removal/pressure control, spent fuel heat removal and the ultimate heat sink. A loss of Vital DC power compromises the ability to monitor and control safety systems. A sustained loss of both AC and DC power will lead to multiple challenges to fission product barriers.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.6.6 EAL SA7 [SA7]

This EAL addresses a hazardous event of sufficient magnitude to cause degraded performance to a safety system train with either 1) visible damage to a second safety system train, or 2) indications of degraded performance on a second safety system train. The affected trains may be on the same safety system or different safety systems. Commercial nuclear power plant safety systems are typically comprised of two or more separate and redundant trains of equipment in accordance with site-specific design criteria. This permits a plant to respond to an event affecting a single train without compromising public health and safety from radiological events. Nonetheless, a hazardous event of sufficient magnitude to impact two safety system trains has the potential to significantly reduce the margin to a loss or potential loss of a fission product barrier and, therefore, represents an actual or potential substantial degradation of the level of safety of the plant. Escalation of the emergency classification level would be via EAL RS1 or FS1.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, and instrumentation and setpoints for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

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 (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.6.7 EAL Set SU8/SS8 [SU8/SS8]

The intent of this EAL set is to ensure that an emergency classification is declared based upon the effect that a failure of the reactor protection system (RPS) may have on the plant.

The NRC staff verified that the progression from a UE to an SAE classification level is appropriate and consistent with EAL scheme development guidance. Escalation of the emergency classification level would be via EAL RG1 or FG1.

- SU8 – This EAL addresses failure of the RPS to initiate or complete an automatic or manual reactor trip that results in a reactor shutdown, and subsequent operator manual actions taken at the reactor control consoles to shut down the reactor are also unsuccessful. Under these conditions, operators will take prompt actions to shut down the reactor from a location outside the Control Room (e.g., opening the reactor trip breakers). This EAL set does not need an Alert classification as other plant conditions will appropriately result in an Alert classification.
- SS8 – This EAL addresses a failure of the RPS to initiate or complete an automatic or manual reactor trip that results in a reactor shutdown, all subsequent operator actions to manually shutdown the reactor are unsuccessful, and continued power generation is challenging the capability to adequately remove heat from the core and/or the RCS. This condition will lead to fuel damage if additional mitigation actions are unsuccessful and thus warrants the declaration of a Site Area Emergency, an event where the RPS fails to automatically shut down the reactor when required and operator actions taken at the reactor control consoles to manually shut down the reactor are unsuccessful.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.7 Review Summary

The NRC staff has reviewed the technical bases for the proposed EAL scheme, the modifications from NEI 99-01, Revision 7, 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 7, 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 verified independently that these modifications do not alter the intent of any specific EAL within a set, recognition category, or within the entire EAL scheme described in NEI 99-01, Revision 7. Therefore, the NRC finds that the proposed changes meet the requirements in Appendix E to 10 CFR Part 50 and the planning standard 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 or multiple events, and allows for event downgrading and upgrading based upon the potential risk to the public health and safety. Risk assessments were used appropriately 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 determined that the proposed EAL scheme is technically complete, accurate, and consistent with EAL schemes implemented at similarly designed plants.

The NRC staff verified independently that the instrumentation and set points derived for this proposed EAL scheme are consistent with the overall EAL scheme development guidance, address the plant-specific implementation strategies provided, and are consistent with a standard EAL scheme.

Based on the above, the NRC staff concludes that the licensee's proposed EAL scheme is acceptable and provides reasonable assurance that the licensee can and will take adequate protective measures in the event of a radiological emergency. Specifically, the staff concludes that the licensee's site-specific EAL basis document provided by Attachment 4 of the letter dated August 7, 2026, is acceptable for implementation. The staff expects implementation of the complete approved EAL Basis Document.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the State of Georgia officials were notified on August 7, 2026. On August 7, 2026, the State officials of Georgia stated that they had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

This action relates to changes to requirements for emergency planning. The NRC staff has determined that any ground disturbance is limited to previously disturbed areas. Additionally, the NRC staff has determined that the action involves no significant change in the types or significant increase in the amounts of any effluents that may be released offsite, no significant increase in individual or cumulative public or occupational radiation exposure, and no significant increase in the potential for or consequences from radiological accidents. Finally, the NRC staff has determined that a categorical exclusion applies and that special circumstances under 10 CFR 51.22, "Categorical exclusions," are not present that would preclude reliance on the categorical exclusion. Accordingly, this action meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(d)(4). Pursuant to 10 CFR 51.22, no environmental impact statement or environmental assessment need be prepared in connection with the action.

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.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO

AMENDMENT NO. 233 TO RENEWED FACILITY OPERATING LICENSE NO. NPF-68

AMENDMENT NO. 215 TO RENEWED FACILITY OPERATING LICENSE NO. NPF-81

VOGTLE ELECTRIC GENERATING PLANT NUCLEAR PLANT, UNITS 1 AND 2

SOUTHERN NUCLEAR OPERATING COMPANY

DOCKET NOS. 50-424, 50-425, AND 72-1039

1.0 INTRODUCTION

By application dated September 30, 2025 (Agencywide Documents and Access Management System Accession No. ML25273A375), supplemented by letters dated February 10 (ML26041A355) and August 7, 2026 (ML26219A256), Southern Nuclear Operating Company (SNC, the licensee) requested U.S. Nuclear Regulatory Commission (NRC) approval of the revised emergency action level (EAL) scheme for the Vogtle Electric Generating Plant (Vogtle), Units 1 and 2.

The proposed amendment would revise the EAL scheme to adopt the Nuclear Energy Institute's (NEI's) revised EAL scheme described in NEI 99-01, Revision 7, "Development of Emergency Action Levels for Non-Passive Reactors," September 2024 (ML24274A312). Revision 7 of NEI 99-01 was endorsed by the NRC staff by Regulatory Guide (RG) 1.101, Revision 7, September 2025 (ML25065A240). The current EAL scheme is based on the guidance established in NEI 99-01, Revision 6, "Methodology for Development of Emergency Action Levels," November 2012 (ML12326A805).

A notice of consideration of proposed issuance of amendments with proposed no significant hazards consideration determination was published in the *Federal Register* on April 14, 2026 (91 FR 19207), and there has been no public comment on such determination. The supplemental letters dated February 10 and August 7, 2026, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the NRC staff's original proposed no significant hazards consideration determination as published in this notice.

2.0 REGULATORY EVALUATION

The applicable regulations and guidance for the emergency plans are provided in Sections 2.1 and 2.2 of this safety evaluation (SE).

2.1 Regulations

Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.47, "Emergency plans," sets forth emergency plan requirements for nuclear power plant facilities. The regulations in 10 CFR 50.47(a) require a determination that reasonable assurance of adequate protection protective measures can and will be taken in the event of a radiological emergency (reasonable assurance determination) prior to the issuance of an operating license or early site permit, as applicable.

Section 50.47(b) establishes the planning standards that the onsite and offsite emergency response plans must meet for NRC staff to make a finding that there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. Regulation 50.47(b)(4) requires a standard emergency classification and action level scheme be in use by the nuclear facility licensee, and that State and local response plans rely on the information provided by the licensee for minimum initial response measures.

The NRC notes that the requirement for a standard emergency classification and action level scheme ensures that implementation methods are reasonably consistent for a specific reactor and containment design while also allowing licensee modifications necessary to address unique design considerations as well as licensee preferences.

Section IV.B of Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities," to 10 CFR Part 50 states, in part, that, "A licensee desiring to change its entire emergency action level scheme shall submit an application for an amendment to its license and receive NRC approval before implementing the change," and establishes additional requirements for an EAL scheme. This section also specifies an annual review by State and local governmental authorities as well as the requirement for NRC prior approval prior to implementation of a new EAL scheme.

2.2 Guidance

EAL development guidance was initially established in response to the lessons learned from the Three-Mile Island event. A lack of a standardized, objective, and technically based emergency classification system led to communication breakdowns, inaccurate or incomplete plant assessments, and subjective notifications. An EAL scheme was developed to eliminate ambiguity, ensure consistent emergency communication, require objective emergency classification thresholds, and support coordinated offsite response. The implementation of the onsite and offsite (State and local) emergency plans only occurs when an EAL is declared thus making EAL schemes a significant part of the onsite and offsite emergency plans.

EAL scheme development guidance has been revised several times to incorporate lessons learned. Note that the naming convention for NRC approved EAL scheme development guidance changed with the endorsement of NEI 99-01 EAL scheme for non-passive large light water reactor (LLWR) designs.

- Effective Revision 0, (initial) scheme development guidance – NRC Generic Letter (GL) 79 50, “Emergency Plans Submittal Dates,” dated October 10, 1979 (ML031320278).
- Effective Revision 1, scheme development guidance – NRC NUREG 0654/FEMA REP 1, Revision 1, “Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants,” November 1980 (ML040420012).
- Effective Revision 2, scheme development guidance - Nuclear Management and Resources Council, Inc., NUMARC/NESP-007, Revision 2, “Methodology for Development of Emergency Action Levels,” January 1992 (ML041120174).
- Effective Revision 3, scheme development guidance – This was to be a revision to NUMARC/NESP-007 but was cancelled as a parallel project (NEI 99-01) to completely revise the EAL scheme development methodology was chosen to be the best approach for EAL scheme development guidance. As a result, there is no effective revision 3 of NRC endorsed EAL scheme development guidance.
- NEI 99 01, Revision 4, “Methodology for Development of Emergency Action Levels,” January 2003 (ML030230250). Note that all future non-passive EAL scheme development guidance for non-passive LLWR designs will continue to use NEI 99-01 with the next sequential revision number for ease of use.
- NEI 99 01, Revision 5, “Methodology for Development of Emergency Action Levels,” February 2008 (ML080450149).
- NEI 99 01, Revision 6, “Development of Emergency Action Levels for Non-Passive Reactors,” November 2012 (ML12326A805).
- NEI 99 01, Revision 7, “Development of Emergency Action Levels for Non-Passive Reactors,” September 2024 (ML24274A312).

This guidance endorsed by NRC Regulatory Guide (RG) 1.101 (ML090440294) considered the criteria and recommendations in Revision 1 of NUREG-0654/FEMA-REP-1, Revision 1 to be approaches acceptable to the NRC for the development of an EAL scheme. Revision 7 of NEI 99-01 was endorsed by the NRC staff by RG 1.101, Revision 7, September 2025 (ML25065A240).

Although the EAL development guidance contained in NEI 99-01 is generic and may not be entirely applicable for some non-passive, LLWR designs, it 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. Licensees may choose to develop plant-specific EAL schemes using NEI 99-01, Revision 7, with appropriate plant-specific alterations as applicable.

2.3 NRC Staff Review – Key Characteristics of an Effective EAL Scheme

In its application dated September 30, 2025, as supplemented by letters dated February 10 and August 7, 2026, the licensee proposes to revise their EAL scheme to one based on NEI 99-01, Revision 7. In its application, the licensee submitted the proposed EAL scheme, the technical basis containing an evaluation and rationale for each proposed EAL change, and a comparison matrix providing a line-by-line comparison of the proposed Initiating Conditions, mode applicability, and EAL wording to that found in NEI 99-01, Revision 7. The comparison matrix also included a description of global changes applicable to the EAL scheme and a justification for any changes from NEI 99-01, Revision 7.

The NRC staff reviewed the information provided by the licensee to verify that the proposed EAL scheme is consistent with the guidance provided in NEI 99-01, Revision 7, to assure that the proposed EAL scheme meets the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4). The NRC staff reviewed the proposed site-specific EAL scheme, technical basis, comparison matrix, and all additional information provided in the licensee's application and supplemental letters. The NRC staff found that the proposed EALs have modifications from the NEI 99-01, Revision 7, guidance due to specific plant designs and licensee preference.

Based on its review of the application, the NRC staff has determined that an audit was needed to review the proposed license amendment request (LAR) justification supporting revision to the EAL scheme, and to determine if additional information may need to be docketed for the NRC to complete its review. The NRC issued an audit plan (ML26075B149) on March 30, 2026, and issued its audit summary (ML26223A533), on August 12, 2026, respectively.

The NRC staff verified independently that the instrumentation and set points derived for this proposed EAL scheme are consistent with the overall EAL scheme development guidance, address the plant-specific implementation strategies provided, and are consistent with a standard EAL scheme.

The NRC staff also verified independently that the EAL Basis Document contained the applicable guidance from Section 5.0, "Guidance on Making Emergency Classifications," of NEI 99-01 Revision 7.

Key Characteristics of an Effective EAL Scheme

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:

- The Initiating Conditions (ICs), EALs, Operating Mode Applicability criteria, Notes and Basis information are consistent with industry guidance. While the actual wording may be different, the classification intent is maintained. With respect to Recognition Category F, a site-specific scheme must include some type of user-aid to facilitate timely and accurate classification of fission product barrier losses and/or potential losses. The user-aid logic must be consistent with the classification logic presented in Section 9 of NEI 99-01 Revision 7.
- The ICs, EALs, Operating Mode Applicability criteria, Notes and Basis information are technically complete and accurate (i.e., they contain the information necessary to make a correct classification).
- EAL statements use objective criteria and observable values.
- ICs, EALs, Operating Mode Applicability and Note statements and formatting consider human factors and are user-friendly.
- The scheme facilitates upgrading and downgrading of the emergency classification where necessary.

The NRC staff verified independently 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 or multiple events, and allows for event downgrading and upgrading based upon the potential risk to the public health

and safety. Risk assessments were used appropriately to set the boundaries of the emergency classification levels and ensure that all EALs that trigger the declaration of an emergency classification are in the same range of relative risk.

In addition, the NRC staff verified independently that the proposed EAL scheme is technically complete and consistent with EAL schemes implemented at similarly designed plants.

A summary of the NRC staff's review of specific EALs is provided in Section 3.0 of this SE.

To aid in understanding the nomenclature used in this safety evaluation, the following conventions are used:

- The scheme's generic information is organized by Recognition Category in the following order:
 - A or R - Abnormal Radiation Levels / Radiological Effluent,
 - C - Cold Shutdown / Refueling System Malfunction,
 - E - Independent Spent Fuel Storage Installation (ISFSI),
 - F - Fission Product Barrier,
 - H - Hazards and Other Conditions Affecting Plant Safety, and
 - S or M - System Malfunction.
- The Recognition Category letter is the first letter for EALs.
- The second letter signifies the emergency classification level:
 - U = Notification of Unusual Event (UE),
 - A = Alert,
 - S = Site Area Emergency (SAE), and
 - G = General Emergency (GE).
- The number denotes the sequential subcategory designation from the plant-specific EAL scheme.

An EAL set refers to EALs within an EAL Recognition Category that include an escalation path for one or more classification levels. Not all EAL Recognition Categories require an EAL set.

This safety evaluation (SE) uses the numbering system from the proposed plant-specific EAL scheme; however, the numbering system from the generic EAL scheme development guidance contained in NEI 99-01, Revision 7, is annotated in [brackets] to aid in cross-referencing the site-specific EAL numbering convention with that of the guidance.

3.0 TECHNICAL EVALUATION

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

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

The intent of this EAL set is to ensure that an emergency classification is declared upon plant-specific indications of a release of radioactivity (gaseous).

The set provides for accident assessments using pre-calculated values based on assumed conditions, real-time parameters, and field monitoring results.

The NRC staff verified that the progression from an Alert to a GE classification level is appropriate and consistent with EAL scheme development guidance.

- RA1 – This EAL addresses a release that results in projected or actual offsite doses greater than 10 millirem (mrem) total effective dose equivalent (TEDE) or 50 mrem thyroid committed dose equivalent (CDE).
- RS1 – This initiating condition addresses a release that results in projected or actual offsite doses greater than 100 mrem TEDE or 500 mrem thyroid CDE.
- RG1 – This initiating condition addresses a release that results in projected or actual offsite doses greater than 1,000 mrem TEDE or 5,000 mrem thyroid CDE.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

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

The intent of this EAL set is to ensure that an emergency classification is declared upon plant-specific indications of potential or actual damage to an irradiated fuel assembly or multiple assemblies. It addresses a lowering of water level over irradiated fuel or fuel uncover (i.e., level below the top of the fuel), a spectrum of fuel handling accidents that result in mechanical damage to irradiated fuel (e.g., a dropped fuel assembly).

The NRC staff has verified that the progression from a UE to a GE classification level is appropriate and consistent with EAL scheme development guidance.

- RU2 – This EAL addresses a decrease in water level above irradiated fuel sufficient to cause elevated radiation levels.
- RA2 – This EAL addresses events that have caused imminent or actual damage to an irradiated fuel assembly, or a significant lowering of water level within the spent fuel pool (SFP).

- RS2 – This EAL addresses a significant loss of SFP water inventory control and makeup capability leading to imminent fuel damage.
- RG2 – This EAL addresses a significant loss of SFP water inventory control and makeup capability leading to a prolonged uncover of irradiated fuel.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.1.3 EAL RU3 [AU3]

The intent of this EAL is to ensure that an emergency classification is declared when elevated radiation levels in certain plant rooms and areas preclude or impede personnel from performing actions necessary to maintain normal plant operation or to perform a normal plant cooldown and shutdown. This includes equipment in the control room and the central alarm station. The UE classification level is intended primarily to ensure that the plant emergency response organization (ERO) is considered to support the control room in removing the impediment to normal access, as well as assisting in quantifying potential damage to the fuel. Depending on the nature of the event, escalation of the emergency classification level would be via an EAL in Recognition Category R, C, F or S.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, and instrumentation and setpoints for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

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 (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

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

3.2.1 EAL Set CA1/CS1/CG1 [CA1/CS1/CG1]

The intent of this EAL set is to ensure an emergency classification is declared upon a loss of reactor pressure vessel (RPV) inventory and/or reactor coolant system (RCS) leakage.

The NRC staff verified that the progression from an Alert to a GE classification level is appropriate and consistent with EAL scheme development guidance.

- CA1 – This EAL addresses conditions that are precursors to a loss of the ability to adequately cool irradiated fuel in the RPV (i.e., a precursor to a challenge to the fuel clad barrier).
- CS1 – This EAL addresses a significant and prolonged loss of RPV/RCS inventory control and makeup capability leading to imminent fuel damage.
- CG1 – This EAL addresses the inability to restore and maintain RPV/RCS level above the top of active fuel with containment challenged.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.2.2 EAL CA2 [CA2]

The intent of this EAL is to ensure that an emergency classification is declared upon a loss of available alternating current (AC) power to emergency power electrical buses.

The NRC staff verified that the Alert classification level is appropriate and consistent with EAL scheme development guidance. Escalation of the emergency classification level would be via EALs RS1 or CS1.

- CA2 – This EAL addresses a loss of all AC power that compromises the performance of all safety systems requiring electric power, including those necessary for emergency core cooling, containment heat removal/pressure control, irradiated fuel heat removal, and the ultimate heat sink.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, and ease of upgrading/downgrading for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for the classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

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 (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.2.3 EAL Set CU3/CA3 [CU3/CA3]

The intent of this EAL set is to ensure that an emergency classification is declared based on the inability to effectively monitor key RCS temperature and level indications with escalation to an inability to maintain control of decay heat removal.

The NRC staff verified that the progression from a UE to an Alert classification level is appropriate and consistent with EAL scheme development guidance. Escalation of the emergency classification level would be via EAL RS1 or CS1.

- CU3 – This IC addresses a loss of the instrumentation needed to monitor RCS temperature and RCS level. These indications are necessary to monitor and assure core decay heat removal. During this condition, there is no immediate threat of fuel damage because the core decay heat load has been reduced since the cessation of power operation; however, because these critical parameters cannot be monitored, the condition represents a potential degradation of the level of safety of the plant.
- CA3 – This EAL addresses conditions involving a loss of decay heat removal capability or an addition of heat to the RCS in excess of that which can currently be removed.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, and ease of upgrading/downgrading for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.2.4 EAL CU4 [CU4]

This IC addresses a loss of vital direct current (DC) power which compromises the ability to monitor and control operable safety systems when the plant is in cold shutdown or refueling mode. In these modes, the core decay heat load has been significantly reduced, and coolant system temperatures and pressures are lower; these conditions increase the time available to restore a vital DC bus to service. Thus, this condition is considered to be a potential degradation of the level of safety of the plant. Depending upon the event, escalation of the emergency classification level would be via EAL CA1 or CA3, or an EAL in Recognition Category R.

The NRC staff verified that the numbering, formatting, logical progression, and instrumentation and setpoints for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

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 (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.2.5 EAL CU5 [CU5]

The intent of this EAL is to highlight the importance of emergency communications by ensuring that an emergency classification is declared if normal communication methods for onsite and offsite personnel, or with offsite response organizations (OROs), including the NRC, are lost. This EAL is intended primarily to ensure that key ERO members and OROs are aware of the loss of communications capabilities, the resources necessary to restore communications are mobilized, and compensatory measures are implemented promptly. The NRC staff verified that no escalation path is necessary for this EAL.

The communication methods derived for this EAL are consistent with the overall EAL scheme development guidance.

The NRC staff verified that the numbering, sequencing, formatting, and logical progression for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

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 (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.2.6 EAL CA6 [CA6]

The intent of this EAL is to ensure that an emergency classification is declared when hazardous events lead to potential damage to safety systems. This EAL is intended primarily to ensure that the plant ERO is activated to support the control room in understanding the event impacts and restoring affected safety system equipment to service. Escalation of the emergency classification level would be via EAL RS1 or CS1.

An Alert classification will be made when a hazardous event results in indications of degraded performance to one train of a safety system with either indications of degraded performance on a second safety system train or visible damage to a second safety system train, such that the operability or reliability of the second safety system train is a concern.

The NRC staff verified that the numbering, sequencing, formatting, and logical progression for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

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 (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.2.7 EAL Set CA7/CS7 [CA7/CS7]

The intent of this EAL set is to ensure that an emergency classification is declared based on an event leading to a transfer of plant operations from the Control Room to the Hot Shutdown Panel Area. SNC proposed to clarify when the declaration clock starts which the staff has reviewed and found acceptable.

The NRC staff verified that the progression from an Alert to a SAE classification level is appropriate and consistent with EAL scheme development guidance. Escalation of the emergency classification level would be via IC RG1 or CG1.

- CA7 – This EAL addresses an evacuation of the Control Room that results in transfer of plant control to alternative locations outside the Control Room. The loss of the ability to control the plant from the Control Room is considered to be a potential substantial degradation in the level of plant safety. Following a Control Room evacuation, control of the plant will be transferred to alternative shutdown locations. The necessity to control the plant from outside the Control Room, in addition to responding to the event that required the evacuation of the Control Room, will present challenges to plant operators and other on-shift personnel. Activation of the ERO and emergency response facilities will assist in responding to these challenges.
- CS7 – This EAL addresses an evacuation of the Control Room with a concurrent challenge to the control of the core cooling safety function. The failure to control the core cooling safety function following the transfer of plant control to locations outside the

Control Room is a precursor to a challenge to one or more fission product barriers within a relatively short period of time.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, and ease of upgrading/downgrading for this EAL set are consistent with the overall EAL scheme development guidance and address the plant specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG 0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.3 Recognition Category 'E' – Independent Spent Fuel Storage Installation

3.3.1 EAL E-HU1 [E-HU1]

The intent of this EAL is limited to an event that results in damage to the confinement boundary of a storage cask containing irradiated fuel, regardless of the cause. This EAL is intended primarily to ensure that key ERO members and OROs are aware of the cask damage, resources necessary to respond to the event are mobilized, and protective measures, if warranted, are implemented promptly. Security-related events for an ISFSI are covered under EAL HU1 and HA1.

The NRC staff verified that the numbering, sequencing, formatting, and logical progression for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

Based on the above, 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 (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.4 Recognition Category 'F' – Fission Product Barrier Matrix

3.4.1 EAL Set FA1/FS1/FG1 [FA1/FS1/FG1]

The intent of this EAL set is to ensure that an emergency classification is declared upon a loss or potential loss of one or more fission product barriers. This EAL set uses plant condition-based criteria as triggers within a particular logic configuration needed to reflect a loss or potential loss of a fission product barrier. Non-passive, LLWRs in the United States have three fission product barriers: fuel cladding, the RCS, and primary containment. Licensees are

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

There are numerous triggers used as logic inputs to decide on the appropriate classification based upon the number of loss and/or potential loss indicators that are triggered for each barrier. By design, these indicators are redundant with other similar indicators in other recognition categories applicable in Hot operating modes. Note that the primary purpose of the Potential Loss criterion is to enable the potential declaration of FS1 or FG1 in advance of meeting the requirements of other SAE or GE applicable in the hot operating modes if conditions warrant. For example, if primary containment radiation monitoring increases due to fission barrier damage, the RCS Loss criteria would be met when the radiation level increases to approximately the technical specification level and would lead to FA1. Increasing radiation levels would eventually lead to FS1 due to meeting the criteria for a Fuel Clad barrier Loss. If radiation levels continue to increase, eventually the criteria for a Potential Loss of the Containment Barrier would be met. Note that this is a Potential Loss, not a Loss, of the Containment Barrier and therefore the release is limited to what can be released through an intact Containment Barrier. Nevertheless, this would lead to a declaration of FG1 so that a protective action recommendation (PAR) can be proactively provided to OROs as the plant conditions are such that the licensee is still in Hot operating modes, with all the corresponding temperature and pressure conditions, and only one barrier is holding back a significant release. All the other thresholds in other recognition categories would typically be limited to a SAE; this is one of the key benefits to the design of the Fission Barrier Matrix, which is different than the development of other recognition categories within the EAL scheme.

The NRC staff verified that the logic, used to determine the appropriate emergency classification, is consistent with the generic EAL scheme development guidance in NEI 99-01, Revision 7. The progression from an Alert to a GE classification level is appropriate and consistent with EAL scheme development guidance.

- FA1 – This EAL addresses any loss or any potential loss of either the fuel clad or RCS barrier.
- FS1 – This EAL addresses loss or potential loss of any two barriers.
- FG1 – This EAL addresses loss of any two barriers and loss or potential loss of the third barrier.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.5 Recognition Category 'H' – Hazards

3.5.1 EAL Set HU1/HA1/HS1 [HU1/HA1/HS1]

The intent of this EAL set is to ensure that an emergency classification is declared based upon a security-related event. 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 in NEI 99-01, Revision 7. Escalation of the emergency classification level would be via an EAL in Recognition Category R, C, F or S.

The NRC staff also verified that the progression from a UE to an SAE classification level is appropriate and consistent with EAL scheme development guidance.

- HU1 – This EAL addresses events that pose a threat to plant personnel or safety system equipment and thus represents a potential degradation in the level of plant safety. A site ISFSI is also within the scope of this IC. Security events which do not meet one of these EALs are adequately addressed by the requirements in 10 CFR Part 73 or 10 CFR 50.72. Security events assessed as hostile actions are classified under EAL HA1 and HS1.
- HA1 – This EAL addresses the occurrence of a hostile action within the owner-controlled area or notification of an aircraft attack threat. This event will require rapid response and assistance due to the possibility of the attack progressing to the protected area, or the need to prepare the plant and staff for a potential aircraft impact.
- HS1 – This EAL addresses the occurrence of a hostile action within the protected area. This event will require rapid response and assistance due to the possibility for damage to plant equipment.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, and ease of upgrading/downgrading for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.5.2 EAL HU2 [HU2]

This EAL addresses a seismic event that results in accelerations at the plant site greater than those specified for an Operating Basis Earthquake (OBE). An earthquake greater than an OBE but less than a Safe Shutdown Earthquake (SSE) should have no significant impact on safety-related systems, structures and components; however, some time may be required for the plant

staff to ascertain the actual post-event condition of the plant (e.g., performs walk-downs and post-event inspections). Given the time necessary to perform walk-downs and inspections, and fully understand any impacts, this event represents a potential degradation of the level of safety of the plant. Depending upon the plant mode at the time of the event, escalation of the emergency classification level would be via IC CA6 or SA7.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, and instrumentation and setpoints for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

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 (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.5.3 EAL HU3 [HU3]

The intent of this EAL is to address an event involving a release of a hazardous gas that precludes or impedes access to equipment necessary to maintain normal plant operation or required for a normal plant cooldown and shutdown. This condition represents a potential degradation of the level of safety of the plant. A declaration is warranted if entry into the affected room/area is, or may be, procedurally required during the plant operating mode in effect at the time of the gaseous release. The emergency classification is not contingent upon whether entry is actually necessary at the time of the release. Depending on the nature of the event, escalation of the emergency classification level would be via an EAL in Recognition Category R, C, F or S.

The NRC staff verified that the numbering, sequencing, formatting, and logical progression for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

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 (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.5.4 EAL HU4 [HU4]

The intent of this EAL is to ensure that an emergency classification is declared based upon the effect that a fire may have on the facility, which would be indicative of a potential degradation of the level of safety of the plant. This EAL is intended primarily to ensure that key ERO members

and OROs are aware of the fire, and post-event damage assessments are implemented promptly. Depending upon the plant mode at the time of the event, escalation of the emergency classification level would be via EAL CA6 or SA7.

The NRC staff verified that the numbering, sequencing, formatting, and logical progression for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

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 (identified in section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.5.5 EAL HU5 [HU5]

The intent of this EAL is to address hazardous events that are considered to represent a potential degradation of the level of safety of the plant. Specifically, this EAL addresses the impact to the safety of the plant from internal or area flooding, difficulties in access the site, or from other site-specific hazards. Depending on the nature of the event, escalation of the emergency classification level would be via an EAL in Recognition Category R, C, F or S.

The NRC staff verified that the numbering, sequencing, formatting, and logical progression for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

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 (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.5.6 EAL Set HU6/HA6/HS6/HG6 [HU6/HA6/HS6/HG6]

The intent of this EAL set is to provide decisionmakers with an escalating emergency classification to consider when, in their judgment, entry into the site's emergency plan and mobilization of the licensee's ERO and ORO is warranted.

The NRC staff verified that the progression from a UE to a GE classification level is appropriate and consistent with EAL scheme development guidance.

- HU6 – This EAL addresses unanticipated conditions not addressed explicitly elsewhere but, in the judgement of EAL decision-makers, warrants declaration of an emergency

due to conditions existing that are believed to fall under the emergency classification level description for a UE.

- HA6 – This EAL addresses unanticipated conditions not addressed explicitly elsewhere but, in the judgement of EAL decision-makers, warrants declaration of an emergency due to conditions existing that are believed to fall under the emergency classification level description for an Alert.
- HS6 – This EAL addresses unanticipated conditions not addressed explicitly elsewhere but, in the judgement of EAL decision-makers, warrants declaration of an emergency due to conditions existing that are believed to fall under the emergency classification level description for an SAE.
- HG6 – This EAL addresses unanticipated conditions not addressed explicitly elsewhere but, in the judgement of EAL decision-makers, warrants declaration of an emergency due to conditions existing that are believed to fall under the emergency classification level description for a GE.

The NRC staff verified that the numbering, sequencing, formatting, and ease of upgrading/downgrading for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.6 Recognition Category 'S' – System Malfunction

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

The intent of this EAL set is to ensure that an emergency classification is declared based upon a loss of available AC power sources to the emergency buses.

The NRC staff reviewed the licensee's evaluation and justification for plant-specific changes associated with this EAL set and verified that the progression from a UE to a GE classification level is appropriate and consistent with EAL scheme development guidance.

- SU1 – This EAL addresses a prolonged loss of offsite power. The loss of offsite power sources renders the plant more vulnerable to a complete loss of power to AC emergency buses. This condition represents a potential reduction in the level of safety of the plant.
- SA1 – This EAL describes a significant degradation of offsite and onsite AC power sources such that any additional single failure would result in a loss of all AC power to safety systems. During this condition, the margin to a potential fission product barrier

challenge is reduced. It thus represents a potential substantial degradation in the level of safety of the plant.

- SS1 – This EAL addresses a total loss of AC power that compromises the performance of all safety systems requiring electric power including those necessary for emergency core cooling, containment heat removal/pressure control, spent fuel heat removal and the ultimate heat sink. In addition, fission product barrier monitoring capabilities may be degraded under these conditions. This EAL represents a condition that involves actual or likely major failures of plant functions needed for the protection of the public.
- SG1 – This EAL addresses a loss of all power sources to AC emergency buses leading to indications of inadequate core cooling. This condition challenges the RCS and Fuel Clad Barriers and, if further mitigation actions are unsuccessful, the Containment Barrier. Although this EAL may be viewed as redundant to Fission Product Barrier IC FG1, it is included to provide for a timelier escalation of the emergency classification level (i.e., SG1 will likely be met before FG1). This approach should allow additional time for the identification and implementation of offsite protective actions.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.6.2 EAL SA2 [SA2]

This EAL addresses the difficulty associated with monitoring rapidly changing plant conditions during a transient without the ability to obtain safety system parameters from within the Control Room. During this condition, the margin to a potential fission product barrier challenge is reduced.

The NRC staff verified that the Alert classification level is appropriate and consistent with EAL scheme development guidance. Escalation of the emergency classification level would be via EAL RS1, CS1 or FS1.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in

Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.6.3 EAL Set SA3/SS3 [SA3/SS3]

The intent of this EAL set is to ensure that an emergency classification is declared based on an event leading to a transfer of plant operations from the Control Room to the Hot Shutdown Panel. SNC proposed to clarify when the declaration clock starts which the staff has reviewed and found acceptable.

The NRC staff verified that the progression from an Alert to a SAE classification level is appropriate and consistent with EAL scheme development guidance. Escalation of the emergency classification level would be via EAL RG1 or FG1.

- SA3 – This EAL addresses an evacuation of the Control Room that results in transfer of plant control to alternative locations outside the Control Room. The loss of the ability to control the plant from the Control Room is considered to be a potential substantial degradation in the level of plant safety
- SS3 – This EAL addresses an evacuation of the Control Room with a concurrent challenge to a fission product barrier. The challenge to a fission product barrier is indicative of an inability to gain control of one or more safety functions following the transfer of plant control to locations outside the Control Room. This condition is a precursor to a challenge to one or more fission product barriers within a relatively short period of time.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.6.4 EAL SU4 [SU4]

The intent of this EAL is to highlight the importance of emergency communications by ensuring that an emergency classification is declared if normal communication methods for onsite and offsite personnel, or with OROs, including the NRC, are lost.

This EAL is intended primarily to ensure that key ERO members and OROs are aware of the loss of communications capabilities, the resources necessary to restore communications are mobilized, and compensatory measures are implemented promptly. The NRC staff verified that no escalation path is necessary for this EAL.

The communication methods derived for this EAL are consistent with the overall EAL scheme development guidance.

The NRC staff verified that the numbering, sequencing, formatting, and logical progression for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

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 (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.6.5 EAL SU5 [SU5]

The intent of this EAL is to address a failure of one or more containment penetrations to automatically isolate (close) when required by an actuation signal. It also addresses an event that results in high containment pressure with a concurrent failure of containment pressure control systems. Absent challenges to another fission product barrier, either condition represents potential degradation of the level of safety of the plant.

This EAL is primarily intended to ensure that key ERO members and OROs are aware of significant challenges to containment integrity, and compensatory measures are promptly implemented. This event would escalate to a SAE per EAL FS1 if there were a concurrent Loss or Potential Loss of either the Fuel Clad or RCS fission product barriers.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, and instrumentation and setpoints for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

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 (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.6.6 EAL Set SS6/SG6 [SS6/SG6]

The intent of this EAL set is to ensure that an emergency classification is declared when a loss of DC power occurs, as this condition compromises the ability of the licensee to monitor and control the removal of decay heat.

The NRC staff verified that the progression from an SAE to a GE classification level is appropriate and consistent with EAL scheme development guidance.

- SS6 – This EAL addresses a loss of Vital DC power which compromises the ability to monitor and control safety systems. This condition involves a major failure of plant functions needed for the protection of the public.
- SG6 – This EAL addresses a concurrent and extended loss of both AC and Vital DC power. A loss of all AC power compromises the performance of all safety systems requiring electric power including those necessary for emergency core cooling, containment heat removal/pressure control, spent fuel heat removal and the ultimate heat sink. A loss of Vital DC power compromises the ability to monitor and control safety systems. A sustained loss of both AC and DC power will lead to multiple challenges to fission product barriers.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.6.7 EAL SA7 [SA7]

This EAL addresses a hazardous event of sufficient magnitude to cause degraded performance to a safety system train with either 1) visible damage to a second safety system train, or 2) indications of degraded performance on a second safety system train. The affected trains may be on the same safety system or different safety systems. Commercial nuclear power plant safety systems are typically comprised of two or more separate and redundant trains of equipment in accordance with site-specific design criteria. This permits a plant to respond to an event affecting a single train without compromising public health and safety from radiological events. Nonetheless, a hazardous event of sufficient magnitude to impact two safety system trains has the potential to significantly reduce the margin to a loss or potential loss of a fission product barrier and therefore represents an actual or potential substantial degradation of the level of safety of the plant. Escalation of the emergency classification level would be via EAL RS1 or FS1.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, and instrumentation and setpoints for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

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 (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.6.8 EAL Set SU8/SS8 [SU8/SS8]

The intent of this EAL set is to ensure that an emergency classification is declared based upon the effect that a failure of the reactor protection system (RPS) may have on the plant.

The NRC staff verified that the progression from a UE to an SAE classification level is appropriate and consistent with EAL scheme development guidance. Escalation of the emergency classification level would be via EAL RG1 or FG1.

- SU8 – This EAL addresses failure of the RPS to initiate or complete an automatic or manual reactor trip that results in a reactor shutdown, and subsequent operator manual actions taken at the reactor control consoles to shut down the reactor are also unsuccessful. Under these conditions, operators will take prompt actions to shut down the reactor from a location outside the Control Room (e.g., opening the reactor trip breakers). This EAL set does not need an Alert classification as other plant conditions will appropriately result in an Alert classification.
- SS8 – This EAL addresses a failure of the RPS to initiate or complete an automatic or manual reactor trip that results in a reactor shutdown, all subsequent operator actions to manually shutdown the reactor are unsuccessful, and continued power generation is challenging the capability to adequately remove heat from the core and/or the RCS. This condition will lead to fuel damage if additional mitigation actions are unsuccessful and thus warrants the declaration of a Site Area Emergency. an event where the RPS fails to automatically shut down the reactor when required and operator actions taken at the reactor control consoles to manually shut down the reactor are unsuccessful.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.7 Review Summary

The NRC staff has reviewed the technical bases for the proposed EAL scheme, the modifications from NEI 99-01, Revision 7, 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 7, 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 verified independently that these modifications do not alter the intent of any specific EAL within a set, recognition category, or within the entire EAL scheme described in NEI 99-01, Revision 7. Therefore, the NRC staff finds that the proposed changes meet the requirements in Appendix E to 10 CFR Part 50 and the planning standard 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 or multiple events, and allows for event downgrading and upgrading based upon the potential risk to the public health and safety. Risk assessments were used appropriately 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 determined that the proposed EAL scheme is technically complete, accurate, and consistent with EAL schemes implemented at similarly designed plants.

The NRC staff verified that the instrumentation and set points derived for this proposed EAL scheme are consistent with the overall EAL scheme development guidance, address the plant-specific implementation strategies provided, and are consistent with a standard EAL scheme.

Based on the above, 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 NRC staff concludes that the licensee's site-specific EAL basis document provided by Attachment 6 of the letter dated August 7, 2026, is acceptable for implementation. The NRC staff expects implementation of the complete approved EAL Basis Document.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the State of Georgia officials were notified on August 7, 2026. On August 7, 2026, the State officials of Georgia stated that they had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

This action relates to changes to requirements for emergency planning. The NRC staff has determined that any ground disturbance is limited to previously disturbed areas. Additionally, the

NRC staff has determined that the action involves no significant change in the types or significant increase in the amounts of any effluents that may be released offsite, no significant increase in individual or cumulative public or occupational radiation exposure, and no significant increase in the potential for or consequences from radiological accidents. Finally, the NRC staff has determined that a categorical exclusion applies and that special circumstances under 10 CFR 51.22, "Categorical exclusions," are not present that would preclude reliance on the categorical exclusion. Accordingly, this action meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(d)(4). Pursuant to 10 CFR 51.22, no environmental impact statement or environmental assessment need be prepared in connection with the action.

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.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO

AMENDMENT NO. 219 TO FACILITY COMBINED LICENSE NO. NPF-91

AMENDMENT NO. 216 TO FACILITY COMBINED LICENSE NO. NPF-92

VOGTLE ELECTRIC GENERATING PLANT NUCLEAR PLANT, UNITS 3 AND 4

SOUTHERN NUCLEAR OPERATING COMPANY

DOCKET NOS. 52-025, 52-026

1.0 INTRODUCTION

By application dated September 30, 2025 (Agencywide Documents and Access Management System Accession No. ML25273A357), supplemented by letters dated February 10 (ML26041A355), and August 7, 2026 (ML26219A256), Southern Nuclear Operating Company (SNC) requested U.S. Nuclear Regulatory Commission (NRC) approval of the revised emergency action level (EAL) scheme for the Vogtle Electric Generating Plant, Units 3 and 4 (VEGP).

The proposed amendment would revise the EAL scheme in its entirety due to VEGP wanting to implement non-design specific enhancements from the Nuclear Energy Institute (NEI) document NEI 99-01, Revision 7, "Development of Emergency Action Levels for Non-Passive Reactors," September 2024 (ML24274A312). Revision 7 of NEI 99-01 was endorsed by the NRC staff by Regulatory Guide (RG) 1.101, Revision 7, September 2025 (ML25065A240), but it is not entirely applicable to the AP1000 design. There are, however, many elements from NEI 99-01 Revision 7 that could be implemented by VEGP, Units 3 and 4 to enhance the consistency with the EAL schemes for VEGP, Units 1 and 2, for ease of site implementation. In addition, some clarifying changes to the EAL scheme were requested from that of the initially approved EAL scheme which was based upon NEI-07-01, Revision 0, "Methodology for Development of Emergency Action Levels for Advanced Passive Light Water Reactors," July 2009 (ML092030210). NEI 07-01, Revision 0, was endorsed by the NRC by letter dated August 12, 2009 (ML092190035). As a result, the proposed EAL scheme for VEGP, Units 3 and 4 is a hybrid scheme using elements of NEI 99-01, Revision 7, and NEI 07-01, Revision 0.

A notice of consideration of proposed issuance of amendments with proposed no significant hazards consideration determination was published in the *Federal Register* on April 14, 2026 (91 FR 19207), and there has been no public comment on such determination. The supplemental letters dated February 10 and August 7, 2026, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and

did not change the NRC staff's original proposed no significant hazards consideration determination as published in this notice.

2.0 REGULATORY EVALUATION

The applicable regulations and guidance for the emergency plans are provided in Sections 2.1 and 2.2 of this safety evaluation (SE).

2.1 Regulations

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

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

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

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

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

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

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

Section IV.B.2 of Appendix E to 10 CFR Part 50 states, in part:

A licensee desiring to change its entire emergency action level scheme shall submit an application for an amendment to its license and receive NRC approval before implementing the change.

2.2 Guidance

The EAL development guidance was initially established in Generic Letter (GL) 79-50, "Emergency Plans Submittal Dates," dated October 10, 1979 (ML031320278), and was subsequently revised in NUREG-0654/FEMA-REP-1, Revision 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," November 1980 (ML040420012), which was endorsed as an approach acceptable to the NRC for the development of an EAL scheme by NRC Regulatory Guide (RG) 1.101, "Emergency Planning and Preparedness for Nuclear Power Reactors," (ML090440294).

EAL scheme development methodology for the AP1000 Pressurized Water Reactor (PWR) and Economic Simplified Boiling Water Reactor (ESBWR) advanced passive, light water reactor designs were provided to the NRC in NEI 07-01, Revision 0, and endorsed via letter dated August 12, 2009 (ML092030210 and ML092190035, respectively).

As industry and regulatory experience was gained with the implementation and use of EAL schemes, the industry issued revised EAL scheme development guidance to reflect lessons learned, numerous of which have been provided to the NRC for review and endorsement as generic (i.e., non-plant-specific) EAL development guidance. Most recently, the industry provided NEI 99-01, Revision 7 (ML24274A312), to the NRC, which was endorsed as an approach acceptable to the NRC for the development of an EAL scheme by NRC Regulatory Guide (RG) 1.101, "Emergency Planning and Preparedness for Nuclear Power Reactors," (ML25065A240).

Although the EAL development guidance contained in NEI 99-01, Revision 7, is generic and may not be entirely applicable for passive reactor designs, it 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. Development of an EAL scheme that captures the relevant non-design aspects of NEI 99-01, Revision 7, as well as maintains the applicable EALs for an AP1000 passive reactor design, may be considered. Pursuant to Section IV.B.2 of Appendix E to 10 CFR Part 50, a revision to an entire EAL scheme must receive NRC approval prior to implementation of the revised EAL scheme.

In summary, the NRC staff concludes that the hybrid approach consisting of elements from NEI 99-01, Revision 7, and NEI 07-01, Revision 0, are an acceptable method to develop plant-specific EALs that meet the requirements of Section IV, "Content of Emergency Plans," 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 guidance documents as allowed in Regulatory Guide 1.101.

2.3 NRC Staff Review – Key Characteristics of an Effective EAL Scheme

The NRC staff verified that the proposed EAL scheme is consistent with the guidance provided in NEI 07-01, Revision 0, to assure that the proposed EAL scheme meets the requirements of

Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4). In its application, SNC proposes revising the current EAL scheme for VEGP, Units 3 and 4, to one based on the non-design related EALs from NEI 99-01, Revision 7, as well as enhancements to NEI 07-01, Revision 0. In its application and supplemental letters, SNC submitted the proposed EAL scheme, the technical basis containing an evaluation and rationale for each proposed EAL change, and a comparison matrix providing a line-by-line comparison of the proposed Initiating Conditions, mode applicability, and EAL wording to that found in NEI 99-01, Revision 7, and NEI 07-01, Revision 0. 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 7, and NEI-07-01, Revision 0.

The NRC staff reviewed the proposed site-specific EAL scheme, technical basis, comparison matrix, and all additional information provided in SNC's application and supplemental letters. The NRC staff concluded that both the current and proposed EALs have modifications from the guidance in NEI 99-01, Revision 7, and NEI 07-01, Revision 0, due to specific plant design and licensee preference. As a result, the staff reviewed this as a design-specific hybrid scheme using elements of NEI 99-01 Revision 7, NEI 07-01 Revision 0, and SNC preferences to align, as much as possible, the EAL schemes for VEGP, Units 1 and 2 with VEGP, Units 3, and 4.

Based on its review of the application, the NRC staff has determined that an audit was needed to review the proposed license amendment request (LAR) justification supporting revision to the EAL scheme, and to determine if additional information may need to be docketed for the NRC to complete its review. The NRC issued an audit plan (ML26075B149) on March 30, 2026, and audit summary (ML26223A533) on August 12, 2026, respectively. Information that the NRC staff relies upon to make the safety determination must be submitted on the docket.

The NRC staff verified independently that the instrumentation and set points derived for this proposed EAL scheme are consistent with the overall EAL scheme development guidance, address the plant-specific implementation strategies provided, and are consistent with a standard EAL scheme.

The NRC staff also verified independently that the EAL Basis Document contained the applicable guidance from Section 5.0, "Guidance on Making Emergency Classifications," of NEI 99-01 Revision 7.

Key Characteristics of an Effective EAL Scheme

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:

- The Initiating Conditions (ICs), EALs, Operating Mode Applicability criteria, Notes and Basis information are consistent with industry guidance. While the actual wording may be different, the classification intent is maintained. With respect to Recognition Category F, a site-specific scheme must include some type of user-aid to facilitate timely and accurate classification of fission product barrier losses and/or potential losses. The user-aid logic must be consistent with the classification logic presented in Section 9 of NEI 99-01 Revision 7.
- The ICs, EALs, Operating Mode Applicability criteria, Notes and Basis information are technically complete and accurate (i.e., they contain the information necessary to make a correct classification).

- EAL statements use objective criteria and observable values.
- ICs, EALs, Operating Mode Applicability and Note statements and formatting consider human factors and are user-friendly.
- The scheme facilitates upgrading and downgrading of the emergency classification where necessary.

The NRC staff verified independently 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 or multiple events, and allows for event downgrading and upgrading based upon the potential risk to the public health and safety. Risk assessments were used appropriately to set the boundaries of the emergency classification levels and ensure that all EALs that trigger the declaration of an emergency classification are in the same range of relative risk. In addition, the NRC staff verified independently that the proposed EAL scheme is technically complete and consistent with EAL schemes implemented at similarly designed plants.

A summary of the NRC staff's review of specific EALs is provided in Section 3.0 of this SE.

To aid in understanding the nomenclature used in this safety evaluation, the following conventions are used:

- The scheme's generic information is organized by Recognition Category in the following order:
 - A or R - Abnormal Radiation Levels / Radiological Effluent,
 - C - Cold Shutdown / Refueling System Malfunction,
 - E - Independent Spent Fuel Storage Installation (ISFSI),
 - F - Fission Product Barrier,
 - H - Hazards and Other Conditions Affecting Plant Safety, and
 - S or M - System Malfunction.
- The Recognition Category letter is the first letter for EALs.
- The second letter signifies the emergency classification level:
 - U = Notification of Unusual Event (UE),
 - A = Alert,
 - S = Site Area Emergency (SAE), and
 - G = General Emergency (GE).
- The number denotes the sequential subcategory designation from the plant-specific EAL scheme.

An EAL set refers to EALs within an EAL Recognition Category that include an escalation path for one or more classification levels. Not all EAL Recognition Categories require an EAL set.

This SE uses the numbering system from the proposed plant-specific EAL scheme. As this EAL scheme is a hybrid consisting of elements from NEI 99-01, Revision 7, NEI 07-01, Revision 0, and other site-specific changes, a cross reference to the numbering convention of NEI 99-01, Revision 7, is unnecessary.

3.0 TECHNICAL EVALUATION

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

3.1.1 EAL Set RA1/RS1/RG1

The intent of this EAL set is to ensure that an emergency classification is declared upon plant-specific indications of a release of radioactivity (gaseous). The set provides for accident assessments using pre-calculated values based on assumed conditions, real-time parameters, and field monitoring results.

The NRC staff verified that the progression from an Alert to a GE classification level is appropriate and consistent with EAL scheme development guidance.

- RA1 – This EAL addresses a release that results in projected or actual offsite doses greater than 10 millirem (mrem) total effective dose equivalent (TEDE) or 50 mrem thyroid committed dose equivalent (CDE).
- RS1 – This initiating condition addresses a release that results in projected or actual offsite doses greater than 100 mrem TEDE or 500 mrem thyroid CDE.
- RG1 – This initiating condition addresses a release that results in projected or actual offsite doses greater than 1,000 mrem TEDE or 5,000 mrem thyroid CDE.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.1.2 EAL Set RU2/RA2/RS2/RG2

The intent of this EAL set is to ensure that an emergency classification is declared upon plant-specific indications of potential or actual damage to an irradiated fuel assembly or multiple assemblies. It addresses a lowering of water level over irradiated fuel or fuel uncover (i.e., level below the top of the fuel), a spectrum of fuel handling accidents that result in mechanical damage to irradiated fuel (e.g., a dropped fuel assembly).

The NRC staff has verified that the progression from a UE to a GE classification level is appropriate and consistent with EAL scheme development guidance.

- RU2 – This EAL addresses a decrease in water level above irradiated fuel sufficient to cause elevated radiation levels.
- RA2 – This EAL addresses events that have caused imminent or actual damage to an irradiated fuel assembly, or a significant lowering of water level within the spent fuel pool (SFP).
- RS2 – This EAL addresses a significant loss of SFP water inventory control and makeup capability leading to imminent fuel damage.
- RG2 – This EAL addresses a significant loss of SFP water inventory control and makeup capability leading to a prolonged uncover of irradiated fuel.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.1.3 EAL RU3

The intent of this EAL is to ensure that an emergency classification is declared when elevated radiation levels in certain plant rooms and areas preclude or impede personnel from performing actions necessary to maintain normal plant operation or to perform a normal plant cooldown and shutdown. This includes equipment in the control room and the central alarm station. The UE classification level is intended primarily to ensure that the plant emergency response organization (ERO) is considered to support the control room in removing the impediment to normal access, as well as assisting in quantifying potential damage to the fuel. Depending on the nature of the event, escalation of the emergency classification level would be via an EAL in Recognition Category R, C, F or S.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, and instrumentation and setpoints for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

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

3.2.1 EAL Set CA1/CS1/CG1

The intent of this EAL set is to ensure an emergency classification is declared upon a loss of reactor pressure vessel (RPV) inventory and/or reactor coolant system (RCS) leakage.

The NRC staff verified that the progression from an Alert to a GE classification level is appropriate and consistent with EAL scheme development guidance.

- CA1 – This EAL addresses conditions that are precursors to a loss of the ability to adequately cool irradiated fuel (i.e., a precursor to a challenge to the fuel clad barrier). This condition represents an actual or potential substantial degradation of the level of safety of the plant
- CS1 – This EAL addresses significant loss of reactor vessel/RCS inventory control and makeup capability. The lost inventory may be due to a RCS component failure, a loss of configuration control or prolonged boiling of reactor coolant. These conditions entail major failures of plant functions needed for protection of the public and thus warrant a Site Area Emergency declaration.
- CG1 – This EAL addresses a prolonged loss of core decay heat removal and inventory makeup, decay heat will cause reactor coolant boiling and lowering of the water level in the reactor vessel. If the water level cannot be restored above the fuel, then fuel damage and a release of fission products to the containment atmosphere is likely. With containment closure not established, there is a high potential for a direct and unmonitored release of radioactivity to the environment. If containment closure is established, there is still a concern that accident conditions could eventually challenge the containment closure measures and lead to a release.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.2.2 EAL CA2

This EAL addresses a total loss of AC power that compromises the performance of all plant systems requiring electric power including those necessary for heat removal /spent fuel heat removal and the active inventory makeup systems.

The NRC staff verified that the Alert classification level is appropriate and consistent with EAL scheme development guidance. Escalation of the emergency classification level would be via EALs RS1 or CS1.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, and ease of upgrading/downgrading for this EAL is consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for the classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.2.3 EAL Set CU3/CA3

The intent of this EAL set is to ensure that an EAL is declared upon an inability to maintain control of decay heat removal or a loss of related indications

The NRC staff verified 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 EALs RS1 and RG1.

- CU3 - This EAL addresses a loss of the instrumentation needed to monitor RCS temperature and reactor vessel/RCS level.
- CA3 - This EAL addresses conditions involving a loss of decay heat removal capability or an addition of heat to the RCS in excess of that which can currently be removed. Either condition represents an actual or potential substantial degradation of the level of safety of the plant.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, and ease of upgrading/downgrading for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.2.4 EAL CU4/CA4

The intent of this EAL set is to ensure an EAL is declared upon indications of Class 1E power loss.

The NRC staff verified that the progression from a UE to an Alert classification level is appropriate and consistent with EAL scheme development guidance. Escalation of the emergency classification level would be via EAL RS1 or CS1.

- CU4 – This EAL addresses a loss of Class 1E 24-hr. DC power which potentially compromises all safety-related plant systems requiring electric power. The event can be classified as an Unusual Event, because the passive design affords additional and redundant means to remove heat passively or restore power to active components.
- CA4 - The EAL addresses a loss of the Class 1E 24-hr. DC, which provides electrical power for safety-related and vital control and monitoring instrumentation loads. This EAL is intended to be anticipatory in as much as the operating crew may not have necessary indication and control of equipment needed to respond to the loss.

The NRC staff verified that the numbering, formatting, logical progression, and instrumentation and setpoints for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.2.5 EAL CU5 [CU5]

The intent of this EAL is to highlight the importance of emergency communications by ensuring that an emergency classification is declared if normal communication methods for onsite and offsite personnel, or with offsite response organizations (OROs), including the NRC, are lost. This EAL is intended primarily to ensure that key ERO members and OROs are aware of the loss of communications capabilities, the resources necessary to restore communications are mobilized, and compensatory measures are implemented promptly. The NRC staff verified that no escalation path is necessary for this EAL.

The communication methods derived for this EAL are consistent with the overall EAL scheme development guidance.

The NRC staff verified that the numbering, sequencing, formatting, and logical progression for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.2.6 EAL CU6/CA6

The intent of this EAL set is to ensure that an emergency classification is declared when hazardous events lead to potential damage to safety systems. This EAL is intended primarily to ensure that the plant ERO is activated to support the control room in understanding the event impacts and restoring affected safety system equipment to service. Escalation of the emergency classification level would be via EAL RS1 or CS1.

The NRC staff verified that the numbering, sequencing, formatting, and logical progression for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

- CU6 - This EAL addresses the difficulty associated with monitoring and controlling changing plant conditions without the use of a major portion of the control and indication systems. A Notification of Unusual Event level is considered appropriate for this loss of monitoring and control IC due to the inherently safer condition of the core when in the cold condition.
- CA6 - This IC addresses hazardous events that are considered to represent a potential degradation of the level of safety of the plant. To warrant consideration for classification, Operability of the affected component must be required by Technical Specifications for the current operating mode.

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 (identified in section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.2.7 EAL Set CA7/CS7

The intent of this EAL set is to ensure that an emergency classification is declared based on an event leading to a transfer of plant operations from the Control Room to the Hot Shutdown

Panel Area. SNC proposed to clarify when the declaration clock starts which the staff has reviewed and found acceptable.

The NRC staff verified that the progression from an Alert to a SAE classification level is appropriate and consistent with EAL scheme development guidance. Escalation of the emergency classification level would be via IC RG1 or CG1.

- CA7 – This EAL addresses an evacuation of the Main Control Room that results in transfer of plant control to alternative locations outside the Main Control Room. The loss of the ability to control the plant from the Main Control Room is considered to be a potential substantial degradation in the level of plant safety.
- CS7 – This EAL addresses an evacuation of the Main Control Room with a concurrent challenge to the control of the core cooling safety function. The failure to control the core cooling safety function following the transfer of plant control to locations outside the Control Room is a precursor to a challenge to one or more fission product barriers within a relatively short period of time.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, and ease of upgrading/downgrading for this EAL set are consistent with the overall EAL scheme development guidance and address the plant specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG 0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.3 Recognition Category 'F' – Fission Product Barrier Matrix

3.3.1 EAL Set FA1/FS1/FG1

The intent of this EAL set is to ensure that an emergency classification is declared upon a loss or potential loss of one or more fission product barriers. This EAL set uses plant condition-based criteria as triggers within a particular logic configuration needed to reflect a loss or potential loss of a fission product barrier. Non-passive, LLWRs in the United States have three fission product barriers: fuel cladding, the RCS, and primary containment. Licensees are to develop criteria that provide EAL decision-makers' input into making an event declaration based upon degradation of one or more of these fission product barriers.

There are numerous triggers used as logic inputs to decide on the appropriate classification based upon the number of loss and/or potential loss indicators that are triggered for each barrier. By design, these indicators are redundant with other similar indicators in other recognition categories applicable in Hot operating modes. Note that the primary purpose of the Potential Loss criterion is to enable the potential declaration of FS1 or FG1 in advance of meeting the requirements of other SAE or GE applicable in the hot operating modes if conditions warrant. For example, if primary containment radiation monitoring increases due to

fission barrier damage, the RCS Loss criteria would be met when the radiation level increases to approximately the technical specification level and would lead to FA1. Increasing radiation levels would eventually lead to FS1 due to meeting the criteria for a Fuel Clad barrier Loss. If radiation levels continue to increase, eventually the criteria for a Potential Loss of the Containment Barrier would be met. Note that this is a Potential Loss, not a Loss, of the Containment Barrier and, therefore, the release is limited to what can be released through an intact Containment Barrier. Nevertheless, this would lead to a declaration of FG1 so that a protective action recommendation (PAR) can be proactively provided to OROs as the plant conditions are such that the licensee is still in Hot operating modes, with all the corresponding temperature and pressure conditions, and only one barrier is holding back a significant release. All the other thresholds in other recognition categories would typically be limited to a SAE; this is one of the key benefits to the design of the Fission Barrier Matrix, which is different than the development of other recognition categories within the EAL scheme.

The NRC staff verified that the logic, used to determine the appropriate emergency classification, is consistent with the generic EAL scheme development guidance in NEI 99-01, Revision 7. The progression from an Alert to a GE classification level is appropriate and consistent with EAL scheme development guidance.

- FA1 – This EAL addresses any loss or any potential loss of either the fuel clad or RCS barrier.
- FS1 – This EAL addresses loss or potential loss of any two barriers.
- FG1 – This EAL addresses loss of any two barriers and loss or potential loss of the third barrier.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.4 Recognition Category 'H' – Hazards

3.4.1 EAL Set HU1/HA1/HS1

The intent of this EAL set is to ensure that an emergency classification is declared based upon a security-related event.

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 in NEI 99-01, Revision 7. Escalation of the emergency classification level would be via an EAL in Recognition Category R, C, F or S.

The NRC staff also verified that the progression from a UE to an SAE classification level is appropriate and consistent with EAL scheme development guidance.

- HU1 – This EAL addresses events that pose a threat to plant personnel or safety system equipment and thus represents a potential degradation in the level of plant safety. A site ISFSI is also within the scope of this IC. Security events which do not meet one of these EALs are adequately addressed by the requirements in 10 CFR Part 73 or 10 CFR 50.72. Security events assessed as hostile actions are classified under EAL HA1 and HS1.
- HA1 – This EAL addresses the occurrence of a hostile action within the owner-controlled area or notification of an aircraft attack threat. This event will require rapid response and assistance due to the possibility of the attack progressing to the protected area, or the need to prepare the plant and staff for a potential aircraft impact.
- HS1 – This EAL addresses the occurrence of a hostile action within the protected area. This event will require rapid response and assistance due to the possibility for damage to plant equipment.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, and ease of upgrading/downgrading for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.4.2 EAL HU2

This EAL addresses a seismic event that results in accelerations at the plant site greater than those specified for an Operating Basis Earthquake (OBE). An earthquake greater than an OBE but less than a Safe Shutdown Earthquake (SSE) should have no significant impact on safety-related systems, structures and components; however, some time may be required for the plant staff to ascertain the actual post-event condition of the plant (e.g., performs walk-downs and post-event inspections). Given the time necessary to perform walk-downs and inspections, and fully understand any impacts, this event represents a potential degradation of the level of safety of the plant. Depending upon the plant mode at the time of the event, escalation of the emergency classification level would be via IC CA6 or SA7.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, and instrumentation and setpoints for this EAL are consistent with the overall EAL scheme

development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.4.3 EAL HU3

The intent of this EAL is to address an event involving a release of a hazardous gas that precludes or impedes access to equipment necessary to maintain normal plant operation or required for a normal plant cooldown and shutdown. This condition represents a potential degradation of the level of safety of the plant. A declaration is warranted if entry into the affected room/area is, or may be, procedurally required during the plant operating mode in effect at the time of the gaseous release. The emergency classification is not contingent upon whether entry is actually necessary at the time of the release. Depending on the nature of the event, escalation of the emergency classification level would be via an EAL in Recognition Category R, C, F or S.

The NRC staff verified that the numbering, sequencing, formatting, and logical progression for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.4.4 EAL HU4

The intent of this EAL is to ensure that an emergency classification is declared based upon the effect that a fire may have on the facility, which would be indicative of a potential degradation of the level of safety of the plant. This EAL is intended primarily to ensure that key ERO members and OROs are aware of the fire, and post-event damage assessments are implemented promptly. Depending on the nature of the event, escalation of the emergency classification level would be via an EAL in Recognition Category R, C, F or S. The addition of additional guidance related to reflash issues is acceptable.

The NRC staff verified that the numbering, sequencing, formatting, and logical progression for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard

EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.4.5 EAL HU5

The intent of this EAL is to address hazardous events that are considered to represent a potential degradation of the level of safety of the plant. Specifically, this EAL addresses the impact to the safety of the plant from internal or area flooding, difficulties in access the site, or from other site-specific hazards. Depending on the nature of the event, escalation of the emergency classification level would be via an EAL in Recognition Category R, C, F or S.

The NRC staff verified that the numbering, sequencing, formatting, and logical progression for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.4.6 EAL Set HU6/HA6/HS6/HG6

The intent of this EAL set is to provide decision-makers with an escalating emergency classification to consider when, in their judgment, entry into the site's emergency plan and mobilization of the licensee's ERO and ORO is warranted.

The NRC staff verified that the progression from a UE to a GE classification level is appropriate and consistent with EAL scheme development guidance.

- HU6 – This EAL addresses unanticipated conditions not addressed explicitly elsewhere but, in the judgement of EAL decision-makers, warrants declaration of an emergency due to conditions existing that are believed to fall under the emergency classification level description for a UE.
- HA6 – This EAL addresses unanticipated conditions not addressed explicitly elsewhere but, in the judgement of EAL decision-makers, warrants declaration of an emergency due to conditions existing that are believed to fall under the emergency classification level description for an Alert.

- HS6 – This EAL addresses unanticipated conditions not addressed explicitly elsewhere but, in the judgement of EAL decision-makers, warrants declaration of an emergency due to conditions existing that are believed to fall under the emergency classification level description for an SAE.
- HG6 – This EAL addresses unanticipated conditions not addressed explicitly elsewhere but, in the judgement of EAL decision-makers, warrants declaration of an emergency due to conditions existing that are believed to fall under the emergency classification level description for a GE.

The NRC staff verified that the numbering, sequencing, formatting, and ease of upgrading/downgrading for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.5 Recognition Category 'S' – System Malfunction

3.5.1 EAL Set SU1/SA1/SS1

The intent of this EAL set is to ensure that an emergency classification is declared based upon a loss of required Class 1E or Class 1E UPS power.

The NRC staff reviewed the licensee's evaluation and justification for plant-specific changes associated with this EAL set and verified that the progression from a UE to a GE classification level is appropriate and consistent with EAL scheme development guidance.

- SU1 – This EAL addresses a loss of Class 1E 24-hr. DC power which may potentially compromise all safety-related plant systems requiring electric power. The event can be classified as a Notice of Unusual Event, because the passive design affords additional and redundant means to remove heat passively or restore power to active components.
- SA1 – This EAL is intended to provide an escalation from IC SU1. Prolonged de-energization of the buses that provide power to the Class 1E 24-hr battery chargers degrades the level of safety of the plant by rendering the plant more vulnerable to a complete loss of DC power even though no operator action is required for 72 hours
- SS1 – This EAL addresses a total loss of Class 1E 24-hr. DC power that compromises the performance of all safety systems requiring electric power including those necessary for emergency core cooling, containment heat removal/pressure control, spent fuel heat removal and the ultimate heat sink. In addition, fission product barrier monitoring

capabilities may be degraded under these conditions. It also addresses Loss of all 24-hr. UPS power compromises ability to monitor and control plant safety functions. Prolonged loss of all UPS power will cause core uncovering and loss of containment integrity when there is significant decay heat and sensible heat in the reactor system.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.5.2 EAL SA2/SU2

This EAL set addresses the difficulty associated with monitoring rapidly changing plant conditions during a transient without the ability to obtain safety system parameters from within the Control Room. During this condition, the margin to a potential fission product barrier challenge is reduced.

The NRC staff verified that the Alert classification level is appropriate and consistent with EAL scheme development guidance. Escalation of the emergency classification level would be via EAL RS1, CS1 or FS1.

- SU2 – This EAL addresses the difficulties associated with monitoring and controlling changing plant conditions without the use of a major portion of the control and indication systems under hot conditions.
- SA2 - This EAL addresses the difficulties associated with an inability of the Main Control Room staff to monitor and control the plant from the Main Control Room due to loss of normal and safety indication and monitoring systems, and diverse indication and control systems that allow the operators to monitor and safely shutdown the plant. An Alert is considered to exist if the Main Control Room staff cannot monitor and control safety functions needed for protection of the public. The loss of ability to monitor or control key safety functions following a Main Control Room evacuation would be classified under SS3.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in

Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

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 (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.5.3 EAL Set SA3/SS3

The intent of this EAL set is to ensure that an emergency classification is declared based on an event leading to a transfer of plant operations from the Control Room to the Hot Shutdown Panel. SNC proposed to clarify when the declaration clock starts which the staff has reviewed and found acceptable.

The NRC staff verified that the progression from an Alert to a SAE classification level is appropriate and consistent with EAL scheme development guidance. Escalation of the emergency classification level would be via EAL RG1 or FG1.

- SA3 – This EAL addresses an evacuation of the Control Room that results in transfer of plant control to alternative locations outside the Control Room. The loss of the ability to control the plant from the Control Room is considered to be a potential substantial degradation in the level of plant safety
- SS3 – This EAL addresses an evacuation of the Control Room with a concurrent challenge to a fission product barrier. The challenge to a fission product barrier is indicative of an inability to gain control of one or more safety functions following the transfer of plant control to locations outside the Control Room. This condition is a precursor to a challenge to one or more fission product barriers within a relatively short period of time.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.5.4 EAL SU4

The intent of this EAL is to highlight the importance of emergency communications by ensuring that an emergency classification is declared if normal communication methods for onsite and offsite personnel, or with OROs, including the NRC, are lost.

This EAL is intended primarily to ensure that key ERO members and OROs are aware of the loss of communications capabilities, the resources necessary to restore communications are mobilized, and compensatory measures are implemented promptly. The NRC staff verified that no escalation path is necessary for this EAL.

The communication methods derived for this EAL are consistent with the overall EAL scheme development guidance.

The NRC staff verified that the numbering, sequencing, formatting, and logical progression for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

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 (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.5.5 EAL SU5

The intent of this EAL is to address a failure of one or more containment penetrations to automatically isolate (close) when required by an actuation signal. It also addresses an event that results in high containment pressure with a concurrent failure of containment pressure control systems. Absent challenges to another fission product barrier, either condition represents potential degradation of the level of safety of the plant.

This EAL is intended primarily to ensure that key ERO members and OROs are aware of significant challenges to containment integrity, and compensatory measures are implemented promptly. This event would escalate to a SAE per EAL FS1 if there were a concurrent Loss or Potential Loss of either the Fuel Clad or RCS fission product barriers.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, and instrumentation and setpoints for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4).

The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

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 (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.5.6 EAL SA7

This EAL addresses a hazardous event of sufficient magnitude to cause degraded performance to a safety system train with either 1) visible damage to a second safety system train, or 2) indications of degraded performance on a second safety system train. The affected trains may be on the same safety system or different safety systems. Commercial nuclear power plant safety systems are typically comprised of two or more separate and redundant trains of equipment in accordance with site-specific design criteria. This permits a plant to respond to an event affecting a single train without compromising public health and safety from radiological events. Nonetheless, a hazardous event of sufficient magnitude to impact two safety system trains has the potential to significantly reduce the margin to a loss or potential loss of a fission product barrier and therefore represents an actual or potential substantial degradation of the level of safety of the plant. Escalation of the emergency classification level would be via EAL RS1 or FS1.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, and instrumentation and setpoints for this EAL are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for this classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

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 (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL acceptable.

3.5.7 EAL Set SU8/SS8

The intent of this EAL set is to ensure that an emergency classification is declared based upon the effect that a failure of the reactor trip system (RTS) may have on the plant.

The NRC staff verified that the progression from a UE to an SAE classification level is appropriate and consistent with EAL scheme development guidance, no Alert classification is necessary for this EAL set. Escalation of the emergency classification level would be via EAL RG1 or FG1.

- SU8 – This EAL addresses a failure of the RTS to initiate or complete an automatic or manual reactor trip that results in a reactor shutdown, and subsequent operator manual actions taken at Main Control Room workstations (DAS, both PDSP trip switches or de-energizing Rod Drive MGs) to shut down the reactor are also unsuccessful. Under these conditions, operators will take prompt actions to shut down the reactor from a location outside the Control Room (e.g., opening the reactor trip breakers). This event is a precursor to a more significant condition and thus represents a potential degradation of the level of safety of the plant. An emergency declaration is required even if the reactor is subsequently shut down by an action taken away from the reactor control consoles since this event entails a significant failure of the RTS.

- SS8 – This EAL addresses a failure of the RTS to initiate or complete an automatic or manual reactor trip that results in a reactor shut down, all subsequent operator actions to manually shut down the reactor are unsuccessful, and continued power generation is challenging the capability to adequately remove heat from the core and/or the RCS. This condition will lead to fuel damage if additional mitigation actions are unsuccessful and thus warrants the declaration of a Site Area Emergency. In some instances, the emergency classification resulting from this EAL may be higher than that resulting from an assessment of the plant responses and symptoms against the Recognition Category F EALs. This is appropriate in that the Recognition Category F EALs do not address the additional threat posed by a failure to shut down the reactor. The inclusion of this EAL ensures the timely declaration of a Site Area Emergency in response to prolonged failure to shut down the reactor.

The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and address the plant-specific implementation strategies provided, and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user-friendliness concerns, is technically complete for each classification level, addresses completeness and accuracy issues raised in Appendix 1 to NUREG-0654 and uses objective and observable values based on site-specific indications.

The NRC staff concludes that the plant-specific implementation method for this EAL set is aligned with the key characteristics of an effective EAL scheme (identified in Section 2.3 above) and meets the requirements of 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the NRC staff finds this EAL set acceptable.

3.6 Review Summary

The NRC staff has reviewed the technical bases for the proposed EAL scheme, the modifications from NEI 99-01, Revision 7, and the licensee's evaluation of the proposed changes based upon design considerations. The licensee chose to modify its proposed EAL scheme from the generic EAL scheme development guidance provided in NEI 99-01, Revision 7, 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 verified independently that these modifications do not alter the intent of any specific EAL within a set, recognition category, or within the entire EAL scheme described in NEI 99-01, Revision 7 and NEI 07-01 Revision 0. Therefore, the NRC finds that the proposed changes meet the requirements in Appendix E to 10 CFR Part 50 and the planning standard 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 or multiple events, and allows for event downgrading and upgrading based upon the potential risk to the public health and safety. Risk assessments were used appropriately 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 determined that the proposed EAL scheme is technically complete, accurate, and consistent with EAL schemes implemented at similarly designed plants.

The NRC staff verified independently that the instrumentation and set points derived for this proposed EAL scheme are consistent with the overall EAL scheme development guidance, address the plant-specific implementation strategies provided, and are consistent with a standard EAL scheme.

Based on the above, 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 NRC staff concludes that the licensee's site-specific EAL basis document provided by Enclosure 8 of the letter dated August 7, 2026, is acceptable for implementation. The NRC staff expects implementation of the complete approved EAL Basis Document.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the State of Georgia officials were notified on August 7, 2026. On August 7, 2026, the State officials of Georgia stated that they had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

This action relates to changes to requirements for emergency planning. The NRC staff has determined that any ground disturbance is limited to previously disturbed areas. Additionally, the NRC staff has determined that the action involves no significant change in the types or significant increase in the amounts of any effluents that may be released offsite, no significant increase in individual or cumulative public or occupational radiation exposure, and no significant increase in the potential for or consequences from radiological accidents. Finally, the NRC staff has determined that a categorical exclusion applies and that special circumstances under 10 CFR 51.22, "Categorical exclusions," are not present that would preclude reliance on the categorical exclusion. Accordingly, this action meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(d)(4). Pursuant to 10 CFR 51.22, no environmental impact statement or environmental assessment need be prepared in connection with the action.

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.

Date: September 28, 2026

SUBJECT: JOSEPH M. FARLEY NUCLEAR PLANT, UNITS 1 AND 2; EDWIN I. HATCH NUCLEAR PLANT, UNITS 1 AND 2; AND VOGTLE ELECTRIC GENERATING PLANT, UNITS 1, 2, 3, AND 4, ISSUANCE OF AMENDMENTS REGARDING THE ADOPTION OF NEI 99-01, REVISION 7, "DEVELOPMENT OF EMERGENCY ACTION LEVELS FOR NON-PASSIVE REACTORS" (EPID L-2025-LLA-0157) DATED SEPTEMBER 28, 2026

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