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

June 14, 2016

Mr. Ken J. Peters
Senior Vice President and
Chief Nuclear Officer
Attention: Regulatory Affairs
Luminant Generation Company LLC
P.O. Box 1002
Glen Rose, TX 76043

SUBJECT: COMANCHE PEAK NUCLEAR POWER PLANT, UNIT NOS. 1 AND 2 - ISSUANCE OF AMENDMENTS REGARDING EMERGENCY ACTION LEVEL SCHEME CHANGE (CAC NOS. MF6407 AND MF6408)

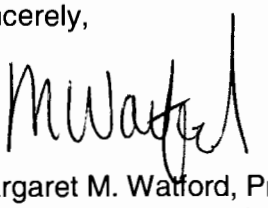
Dear Mr. Peters:

The U.S. Nuclear Regulatory Commission (NRC) has issued the enclosed Amendment No. 166 to Facility Operating License No. NPF-87 and Amendment No. 166 to Facility Operating License No. NPF-89 for Comanche Peak Nuclear Power Plant, Unit Nos. 1 and 2, respectively. The amendments consist of changes to the emergency action level (EAL) scheme in response to your application dated June 30, 2015, as supplemented by letters dated January 27 and March 3, 2016.

The amendments revise your current EAL scheme to a scheme based on Nuclear Energy Institute (NEI) 99-01, Revision 6, "Development of Emergency Action Levels for Non-Passive Reactors," November 2012. NEI 99-01, Revision 6, "Development of Emergency Action Levels for Non-Passive Reactors," was endorsed by the NRC by letter dated March 28, 2013.

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

Sincerely,



Margaret M. Watford, Project Manager
Plant Licensing Branch IV-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-445 and 50-446

Enclosures:
1. Amendment No. 166 to NPF-87
2. Amendment No. 166 to NPF-89
3. Safety Evaluation

cc: Listserv

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

LUMINANT GENERATION COMPANY LLC

COMANCHE PEAK NUCLEAR POWER PLANT, UNIT NO. 1

DOCKET NO. 50-445

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 166
License No. NPF-87

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Luminant Generation Company LLC dated June 30, 2015, as supplemented by letters dated January 27 and March 3, 2016, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, as amended, 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. 166, Facility Operating License No. NPF-87 is hereby amended to authorize revision to the Comanche Peak Nuclear Power Plant Emergency Plan as set forth in Luminant Generation Company LLC's application dated June 30, 2015, as supplemented by letters dated January 27 and March 3, 2016, and evaluated in the NRC staff's safety evaluation enclosed with this amendment.

3. The license amendment is effective as of its date of issuance and shall be implemented within 180 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Michele G Evans for

William M. Dean, Director
Office of Nuclear Reactor Regulation

Date of Issuance: June 14, 2016.

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

LUMINANT GENERATION COMPANY LLC

COMANCHE PEAK NUCLEAR POWER PLANT, UNIT NO. 2

DOCKET NO. 50-446

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 166
License No. NPF-89

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Luminant Generation Company LLC dated June 30, 2015, as supplemented by letters dated January 27 and March 3, 2016, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, as amended, 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. 166, Facility Operating License No. NPF-89 is hereby amended to authorize revision to the Comanche Peak Nuclear Power Plant Emergency Plan as set forth in Luminant Generation Company LLC's application dated June 30, 2015, as supplemented by letters dated January 27 and March 3, 2016, and evaluated in the NRC staff's safety evaluation enclosed with this amendment.

3. The license amendment is effective as of its date of issuance and shall be implemented within 180 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Michele G Evans for

William M. Dean, Director
Office of Nuclear Reactor Regulation

Date of Issuance: June 14, 2016.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 166 TO

FACILITY OPERATING LICENSE NO. NPF-87

AND AMENDMENT NO. 166 TO

FACILITY OPERATING LICENSE NO. NPF-89

LUMINANT GENERATION COMPANY LLC

COMANCHE PEAK NUCLEAR POWER PLANT, UNIT NOS. 1 AND 2

DOCKET NOS. 50-445 AND 50-446

1.0 INTRODUCTION

By application dated June 30, 2015, as supplemented by letters dated January 27 and March 3, 2016 (References 1, 2, and 3, respectively), Luminant Generation Company LLC (Luminant Power, the licensee) requested changes to the emergency plan for Comanche Peak Nuclear Power Plant (CPNPP), Unit Nos. 1 and 2.

The proposed amendments would revise the current emergency action level (EAL) scheme to a scheme based on Nuclear Energy Institute (NEI) 99-01, Revision 6, "Development of Emergency Action Levels for Non-Passive Reactors," November 2012 (Reference 4). NEI 99-01, Revision 6, was endorsed by the U.S. Nuclear Regulatory Commission (NRC) by letter dated March 28, 2013 (Reference 5).

The supplemental letters dated January 27 and March 3, 2016, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the NRC staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on August 14, 2015 (80 FR 48923), and corrected on August 20, 2015 (80 FR 50663).

2.0 REGULATORY EVALUATION

The applicable regulations and guidance for the emergency plan are identified in the following sections.

2.1 Regulations

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

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

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

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

Section 50.47(b)(4) emphasizes 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, that

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

Section IV.B.2 of Appendix E 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.

The proposed changes were submitted to the NRC for a technical and regulatory review prior to the implementation by the licensee. This review is based upon a proposed revision to the site-specific EAL scheme provided in the licensee's application letter and supplemented by the licensee's responses to the NRC staff's requests for additional information (RAIs) dated November 19 and December 16, 2015 (References 6 and 7, respectively).

2.2 Guidance

The EAL development guidance was initially established in Generic Letter (GL) 79-50, dated October 10, 1979 (Reference 8), 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 (Reference 9), which was endorsed as an approach acceptable to the NRC for the development of an EAL scheme by NRC Regulatory Guide (RG) 1.101, Revision 2, "Emergency Planning and Preparedness for Nuclear Power Reactors," October 1981 (Reference 10).

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. To date, NUMARC/NESP-007, Revision 2, "Methodology for Development of Emergency Action Levels," January 1992 (Reference 11), and NEI 99-01, Revisions 4, 5, and 6 (Reference 4), have been provided to the NRC for review and endorsement as generic (i.e., non-plant-specific) EAL development guidance. Revisions 3 and 4 of RG 1.101 endorsed NUMARC/NESP-007 and NEI 99-01, Revision 4, as acceptable alternatives for licensees to consider in the development of their plant-specific EAL schemes and allowed for licensees to develop plant-specific EALs based upon an alternative approach not endorsed by the NRC. By letter dated February 22, 2008, Revision 5 of NEI 99-01 was endorsed by the NRC as acceptable generic (i.e., non-plant-specific) EAL scheme development guidance (Reference 12). Revision 6 of NEI 99-01 was endorsed by the NRC as acceptable generic (i.e., non-plant-specific) EAL scheme development guidance by letter dated March 28, 2013.

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

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

- Appendix 1, "Emergency Action Level Guidelines for Nuclear Power Plants," to NUREG-0654/FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," November 1980;

- NUMARC/NESP-007, Revision 2, "Methodology for Development of Emergency Action Levels," January 1992;

- NEI 99-01, Revision 4, "Methodology for Development of Emergency Action Levels," January 2003;

- NEI 99-01, Revision 5, "Methodology for Development of Emergency Action Levels," February 2008; and

- NEI 99-01, Revision 6, "Development of Emergency Action Levels for Non-Passive Reactors," November 2012.

NRC Regulatory Issue Summary (RIS) 2003-18, "Use of NEI 99-01, 'Methodology for Development of Emergency Action Levels,'" dated October 8, 2003, with Supplement 1, dated July 13, 2004, and Supplement 2, dated December 12, 2005 (Reference 13), also provides guidance for developing or changing a standard EAL scheme. In addition, this RIS and its supplements provide recommendations to assist licensees, consistent with Section IV.B of Appendix E to 10 CFR Part 50, in determining whether to seek prior NRC approval of deviations from the guidance.

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

3.0 TECHNICAL EVALUATION

In its application and supplemental letters, the licensee proposes to revise the current CPNPP EAL scheme based on NEI 99-01, Revision 5, to one based on NEI 99-01, Revision 6. In its application and supplemental letters, 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 6. The comparison matrix also included a description of global changes applicable to the EAL scheme and a justification for any differences or deviations from NEI 99-01, Revision 6. The application states that the licensee used the terms "difference" and "deviation" as defined in RIS 2003-18, as

supplemented, when comparing its proposed plant-specific EALs to the generic EALs in NEI 99-01, Revision 6.

The NRC staff reviewed the proposed site-specific EAL scheme, technical bases, comparison matrix, and all additional information provided in the licensee's application and supplemental letters. The NRC staff notes that both the current and proposed EALs have modifications from the guidance due to specific plant designs and licensee preference.

Although the EALs must be plant-specific, the NRC staff reviewed the proposed EALs for the following key characteristics of an effective EAL scheme to ensure consistency and regulatory stability:

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

Based on its review, the NRC staff verified that the proposed EAL modifications do not alter the intent of any specific EAL described in NEI 99-01, Revision 6. The licensee chose to modify its proposed EAL scheme from the generic EAL scheme development guidance provided in NEI 99-01, Revision 6, in order to adopt a format that is better aligned with how it currently implements its EALs, as well as with plant-specific writer's guides and preferences.

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

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

- The first letter signifies the EAL category;
- The second letter signifies the emergency classification level:
  - G = General Emergency (GE),
  - S = Site Area Emergency (SAE),
  - A = Alert, and
  - U = Notification of Unusual Event (UE)
- The number denotes the sequential subcategory designation from the plant-specific EAL scheme.

EALs within an EAL Recognition Category and subcategory typically include an escalation path for one or more classification levels. These EALs are referred to as sets. For EALs that are not part of a set, a discussion is provided that explains why no escalation path for that specific EAL Recognition Category and subcategory is needed.

For ease of use, this safety evaluation 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 6, is also annotated in [brackets] to aid in cross-referencing the proposed site-specific EAL numbering convention with that of the guidance.

3.1 Category 'R' - Abnormal Radiological Release/Radiological Effluent

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

The licensee chose to modify this EAL set by utilizing a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. However, based on its review, the NRC staff has verified that the numbering, sequencing, and format of this EAL set are consistent with the overall EAL scheme development guidance and with the site-specific implementation strategies provided, and are, therefore, considered part of a standard EAL scheme. The NRC staff also verified that the EAL set is worded in a manner that addresses human factors engineering and user friendliness concerns, addresses the completeness and accuracy issues raised in Appendix 1 to NUREG-0654, and uses objective and observable values.

This EAL set is based upon plant-specific indications of a release of radioactivity (gaseous and/or liquid). In recognition of the lower possible radioactivity concentrations, the assessment of liquid releases is limited to the UE and Alert emergency classification levels. 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 UE to GE is appropriate and consistent with EAL scheme development guidance.

- RU1 - This EAL addresses a potential decrease in the level of safety of the plant as indicated by a low-level radiological release that exceeds regulatory commitments for an extended period of time (e.g., an uncontrolled release).

- RA1 - This EAL addresses a release of gaseous or liquid radioactivity that results in projected or actual offsite doses greater than or equal to 1 percent of the U.S. Environmental Protection Agency (EPA) Protective Action Guides (PAGs). Revision 6 to NEI 99-01 added an EAL based upon field survey results to maintain consistency through this EAL set.

- RS1 - This initiating condition addresses a release of gaseous radioactivity that results in projected or actual offsite doses greater than or equal to 10 percent of the EPA PAGs.

- RG1 - This initiating condition addresses a release of gaseous radioactivity that results in projected or actual offsite doses greater than or equal to the EPA PAGs.

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

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

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

The licensee chose to modify this EAL set by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. However, based on its review, the NRC staff has verified that the numbering, sequencing, and format of this EAL set are consistent with the overall EAL scheme development guidance and with the site-specific implementation strategies provided, and are, therefore, considered part of a standard EAL scheme. The NRC staff also verified that the EAL set is worded in a manner that addresses human factors engineering and user friendliness concerns, addresses the completeness and accuracy issues raised in Appendix 1 to NUREG-0654, and uses objective and observable values.

This EAL set is based 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 uncovery (i.e., level below the top of the fuel), and a spectrum of fuel handling accidents that result in mechanical damage to irradiated fuel (e.g., a dropped fuel assembly). Revision 6 to NEI 99-01 added an EAL to RA2 and initiating conditions RS2 and

RG2 to address NRC Order EA-12-051, "Order Modifying Licenses with Regard to Reliable Spent Fuel Pool Instrumentation," dated March 12, 2012 (Reference 14).

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

- RU2 - This initiating condition addresses a decrease in water level above irradiated fuel sufficient to cause elevated radiation levels. NEI removed the EAL for area radiation monitoring (ARM) 1000 X normal in Revision 6 to NEI 99-01, because it was an EAL that was already bounded by RU1, and most ARMs are out of range of this value. In addition, readings of 1000 X normal could be indicative of other issues than from a potential fission barrier issue from the reactor core. EAL RU1 will bound this event in all operating modes.

- RA2 - This initiating condition 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. Revision 6 to NEI 99-01 added an EAL to address NRC Order EA-12-051.

- RS2 - This initiating condition addresses a significant loss of spent fuel pool inventory control and makeup capability leading to imminent fuel damage and addresses NRC Order EA-12-051.

- RG2 - This initiating condition addresses a significant loss of spent fuel pool inventory control and makeup capability leading to a prolonged uncovery of spent fuel and addresses NRC Order EA-12-051.

The SAE and GE emergency classification levels for this specific accident progression are also bounded by indications available in the fission product barrier tables, as well as initiating conditions RS1 and RG1. With the availability of new spent fuel pool level instrumentation, the enhanced EALs will provide a redundant escalation path by including specific SAE and GE initiating conditions.

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

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

3.1.3 CPNPP EAL RA3 [AA3]

The licensee chose to modify this EAL by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. However, based on its review, the NRC staff has verified that

the numbering, sequencing, and format of this EAL are consistent with the overall EAL scheme development guidance and with the site-specific implementation strategies provided, and are, therefore, considered part of a standard EAL scheme. The NRC staff also verified that the EAL is worded in a manner that addresses human factors engineering and user friendliness concerns, addresses the completeness and accuracy issues raised in Appendix 1 to NUREG-0654, and uses objective and observable values.

This EAL is based upon radiation levels in the plant that limit normal access, as well as when the plant has indications of fuel clad degradation. These initiating conditions address elevated radiation levels in certain plant rooms and areas sufficient to 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, and other plant-specific areas and rooms requiring continuous occupancy. The Alert EAL is primarily intended to ensure that the plant emergency response organization (ERO) is activated to support the control room in removing the impediment to normal access, as well as assisting in quantifying potential damage to the fuel. Indications of increasing radiation levels in the plant are bounded by indication of fission product barrier loss or potential loss, as well as in RS1 and RG1.

This stand-alone initiating condition is appropriate and consistent with guidance provided in NUREG-0654/FEMA-REP-1, and does not require an initiating condition set within the overall emergency classification scheme. Indications of further increases in radiation levels in the plant are bounded by indications available in the fission product barrier tables, as well as initiating conditions RS1 and RG1.

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

3.2 Category 'C' - Cold Shutdown/Refueling System Malfunction

3.2.1 CPNPP EAL Set CU1/CA1/CS1/CG1 [CU1/CA1/CS1/CG1]

The licensee chose to modify this EAL set by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. However, based on its review, the NRC staff has verified that the numbering, sequencing, and format of this EAL set are consistent with the overall EAL scheme development guidance and with the site-specific implementation strategies provided, and are, therefore, considered part of a standard EAL scheme. The NRC staff also verified that the EAL set is worded in a manner that addresses human factors engineering and user friendliness concerns, addresses the completeness and accuracy issues raised in Appendix 1 to NUREG-0654, and uses objective and observable values.

This EAL set is based upon a loss of reactor pressure vessel inventory and/or reactor coolant system (RCS) leakage.

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

- CU1 - This initiating condition addresses the inability to restore and maintain water level to a required minimum level (or the lower limit of a level band), or a loss of the ability to monitor reactor vessel/RCS level concurrent with indications of coolant leakage. This EAL in Revision 6 to NEI 99-01 also combined the CU2 EAL from NEI 99-01, Revision 5, as it was functionally similar.

- CA1 - This initiating condition 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).

- CS1 - This initiating condition addresses a significant and prolonged loss of reactor vessel/RCS inventory control and makeup capability leading to imminent fuel damage.

- CG1 - This initiating condition addresses the inability to restore and maintain reactor vessel level above the top of active fuel with containment challenged.

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

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

3.2.2 CPNPP EAL Set CU2/CA2 [CU2/CA2]

Based on its review, the NRC staff has verified that the numbering, sequencing, and format of this EAL set are consistent with the overall EAL scheme development guidance and with the plant-specific implementation strategies provided, and are, therefore, considered part of a standard EAL scheme. The NRC staff also verified that the EAL set is worded in a manner that addresses human factors engineering and user friendliness concerns, addresses the completeness and accuracy issues raised in Appendix 1 to NUREG-0654, and uses objective and observable values.

This EAL set is based upon a loss of available alternating current (AC) power to emergency power electrical busses.

The NRC staff has 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 indications available in EALs RS1 and RG1.

- CU2 - This initiating condition 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. Revision 6 to NEI 99-01 added the defueled operating mode to this EAL because it should also be applicable when the core is defueled.

- CA2 - This initiating condition 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.

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

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

3.2.3 CPNPP EAL Set CU3/CA3 [CU3/CA3]

The licensee chose to modify this EAL set by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. However, based on its review, the NRC staff has verified that the numbering, sequencing, and format of this EAL is consistent with the overall EAL scheme development guidance and with the site-specific implementation strategies provided, and is, therefore, considered part of a standard EAL scheme. The NRC staff also verified that the EAL set is worded in a manner that addresses human factors engineering and user friendliness concerns, addresses the completeness and accuracy issues raised in Appendix 1 to NUREG-0654, and uses objective and observable values.

This EAL set is based upon an inability to maintain control of decay heat removal.

The NRC staff has 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 indications available in EALs RS1 and RG1.

- CU3 - This initiating condition addresses an unplanned increase in RCS temperature above the Technical Specification cold shutdown temperature limit, or the inability to determine RCS temperature and level.

- CA3 - This initiating condition 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 instrumentation and set points derived for this EAL set are consistent with the overall EAL scheme development guidance, address the plant-specific implementation strategies provided, and are consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4).

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

3.2.4 CPNPP EAL CU4 [CU4]

Based on its review, the NRC staff has verified that the numbering, sequencing, and format of this EAL are consistent with the overall EAL scheme development guidance and with the plant-specific implementation strategies provided, and are, therefore, considered part of a standard EAL scheme. The NRC staff also verified that the EAL set is worded in a manner that addresses human factors engineering and user friendliness concerns, addresses the completeness and accuracy issues raised in Appendix 1 to NUREG-0654, and uses objective and observable values.

This EAL is not part of an EAL set within the overall EAL scheme. The intent of the EAL is to ensure that an EAL is declared when a loss of vital direct current (DC) power, which compromises the ability to monitor and control operable safety systems when the plant is in the cold shutdown or refueling mode.

This stand-alone initiating condition is appropriate and consistent with guidance provided in NUREG-0654/FEMA-REP-1, and does not require an initiating condition set within the overall emergency classification scheme. It is primarily intended to ensure that key ERO members and offsite response organizations (OROs) are aware of the event, resources necessary to respond to the event are mobilized, and any necessary compensatory measures are promptly implemented. The Alert, SAE, and GE classification levels for a protracted loss of Vital DC power are bounded by indications available in initiating conditions CA1, CA3, CS1, CG1, RA1, RS1, and RG1.

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

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

3.2.5 CPNPP EAL CU5 [CU5]

Based on its review, the NRC staff has verified that the numbering, sequencing, and format of this EAL are consistent with the overall EAL scheme development guidance and with the plant-specific implementation strategies provided, and are, therefore, considered part of a standard EAL scheme. The NRC staff also verified that the EAL set is worded in a manner that addresses human factors engineering and user friendliness concerns, addresses the completeness and accuracy issues raised in Appendix 1 to NUREG-0654, and uses objective and observable values.

This EAL is not part of an EAL set within the overall EAL scheme. The intent of the EAL is to highlight the importance of emergency communications by ensuring that an EAL is declared if normal communication methods for onsite and offsite personnel, or with OROs, including the NRC, are lost.

This stand-alone initiating condition is appropriate and consistent with guidance provided in NUREG-0654/FEMA-REP-1, and does not require an initiating condition set within the overall emergency classification scheme. It 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 has 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, and are consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4).

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

3.2.6 CPNPP EAL CA6 [CA6]

Based on its review, the NRC staff has verified that the numbering, sequencing, and format of this EAL are consistent with the overall EAL scheme development guidance and with the plant-specific implementation strategies provided, and are, therefore, considered part of a standard EAL scheme. The NRC staff also verified that the EAL set is worded in a manner that addresses human factors engineering and user friendliness concerns, addresses the completeness and accuracy issues raised in Appendix 1 to NUREG-0654, and uses objective and observable values.

This EAL is not part of an EAL set within the overall EAL scheme. The intent of the EAL is to ensure that an EAL is declared when hazardous events lead to potential damage to safety systems. These hazardous events include, but are not limited to, an earthquake, flooding, high winds, tornado strike, explosion, fire, or any other hazard applicable for a specific site.

This stand-alone initiating condition is appropriate and consistent with guidance provided in NUREG-0654/FEMA-REP-1, and does not require an initiating condition set within the overall

emergency classification scheme. It 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. The SAE and GE classification levels for this accident progression are bounded by indications available in initiating conditions CS1, CG1, RS1, and RG1.

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

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

3.3.1 CPNPP EAL EU1 [E-HU1]

Based on its review, the NRC staff has verified that the numbering, sequencing, and format of this EAL are consistent with the overall EAL scheme development guidance and with the plant-specific implementation strategies provided, and are, therefore, considered part of a standard EAL scheme. The NRC staff also verified that the EAL set is worded in a manner that addresses human factors engineering and user friendliness concerns, addresses the completeness and accuracy issues raised in Appendix 1 to NUREG-0654, and uses objective and observable values.

This EAL is not part of an EAL set within the overall EAL scheme. The intent of the EAL is limited to an event that results in damage to the confinement boundary of a storage cask containing spent fuel. The initiating condition and associated EAL are independent of the initiating event (e.g., component failure, natural event).

This stand-alone initiating condition is appropriate and consistent with guidance provided in NUREG-0654/FEMA-REP-1, and does not require an initiating condition set within the overall emergency classification scheme. It is primarily intended 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 are promptly implemented. Revision 6 to NEI 99-01 added a note to clarify that security-related events of concern to an ISFSI are bounded by initiating condition HA1.

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

3.4 Category 'F' - Fission Product Barrier Matrix

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

provided, and are, therefore, considered part of a standard EAL scheme. The NRC staff also verified that the EAL set is worded in a manner that addresses human factors engineering and user friendliness concerns, addresses the completeness and accuracy issues raised in Appendix 1 to NUREG-0654, and uses objective and observable values.

This category is unique in the overall EAL scheme, as the thresholds are not intended to be stand-alone indicators of a particular event occurring at the plant. Rather, they are to be used as triggers within the particular logic configuration needed to reflect a loss or potential loss of a fission product barrier. Light-water nuclear power plants in the U.S. have three fission product barriers: fuel cladding, the RCS, and the primary containment. Licensees are to develop thresholds that provide EAL decision-makers input into making an event declaration based upon degradation of one or more of these fission product barriers.

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

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

- FA1 - Any Loss or any Potential Loss of either the Fuel Clad or RCS barrier.
- FS1 - Loss or Potential Loss of any two barriers.
- FG1 - Loss of any two barriers and Loss or Potential Loss of the third barrier.

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

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

3.5 Category 'H' - Hazards

3.5.1 CPNPP EAL Set HU1/HA1/HS1/HG1 [HU1/HA1/HS1/HG1]

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

scheme development guidance and with the site-specific implementation strategies provided, and are, therefore, considered part of a standard EAL scheme. The NRC staff also verified that the EAL set is worded in a manner that addresses human factors engineering and user friendliness concerns, addresses the completeness and accuracy issues raised in Appendix 1 to NUREG-0654, and uses objective and observable values.

This EAL set is based upon security-related events originally developed in accordance with the guidance from NRC Bulletin 2005-02, "Emergency Preparedness and Response Actions for Security-Based Events," dated July 18, 2005 (Reference 15), and RIS 2006-12, "Endorsement of Nuclear Energy Institute Guidance 'Enhancements to Emergency Preparedness Programs for Hostile Action,'" dated July 19, 2006 (Reference 16), for licensees to implement, regardless of the specific version of the generic EAL scheme development guidance used, or if the particular licensee developed its EAL scheme using an alternative approach. Based upon lessons learned from the implementation and use of this EAL set, particularly the insights gained from combined security and emergency preparedness drills, the NRC staff and the industry worked to enhance the language of these EALs in NEI 99-01, Revision 6, so as to eliminate any confusion without changing the intent of the EAL set as set forth in NRC Bulletin 2005-02 and RIS 2006-12.

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

- HU1 - This initiating condition addresses events that pose a threat to plant personnel or safety system equipment.

- HA1 - This initiating condition addresses the occurrence of a hostile action within the Owner Controlled Area or notification of an aircraft attack threat.

- HS1 - This initiating condition addresses the occurrence of a hostile action within the Protected Area.

- HG1 - This initiating condition addresses an event in which a hostile force has taken physical control of the facility to the extent that the plant staff can no longer operate equipment necessary to maintain key safety functions. It also addresses a hostile action leading to a loss of physical control that results in actual or imminent damage to spent fuel.

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

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

3.5.2 CPNPP EAL HU2 [HU2]

Based on its review, the NRC staff has verified that the numbering, sequencing, and format of this EAL are consistent with the overall EAL scheme development guidance and with the plant-specific implementation strategies provided, and are, therefore, considered part of a standard EAL scheme. The NRC staff also verified that the EAL set is worded in a manner that addresses human factors engineering and user friendliness concerns, addresses the completeness and accuracy issues raised in Appendix 1 to NUREG-0654, and uses objective and observable values.

This EAL is not part of an EAL set within the overall EAL scheme. This EAL is based upon a seismic event that results in accelerations at the plant site greater than specified for an operating basis earthquake (OBE), which will result in an emergency classification level classification and licensees will assess damage as required by site-specific procedures. While this EAL was captured as an Alert classification in previous NRC-endorsed guidance documents, seismic events greater than an OBE, but less than a safe shutdown earthquake (SSE), should have no significant impact on plant safety-related systems, structures, or components, and, therefore, the UE classification is appropriate given the commensurate risk to the public, and the possible issues with plant operations.

This stand-alone initiating condition, within this recognition subcategory, is appropriate and consistent with guidance provided in NUREG-0654/FEMA-REP-1. This initiating condition is primarily intended to ensure that key ERO members and OROs are aware of the earthquake magnitude at the plant site, and that post-event damage assessments are promptly implemented. Indications of earthquake-induced damage to safety systems are bounded by indications available in EALs SA9 or CA6. Indications of earthquake-induced damage to components containing radioactive materials are bounded by indications available in the fission product barrier matrix as well as in EALs RA1, RS1, or RG1.

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

3.5.3 CPNPP EAL HU3 [HU3]

The licensee chose to modify this EAL by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. However, based on its review, the NRC staff has verified that the numbering, sequencing, and format of this EAL are consistent with the overall EAL scheme development guidance and with the site-specific implementation strategies provided, and are, therefore, considered part of a standard EAL scheme. The NRC staff also verified that the EAL set is worded in a manner that addresses human factors engineering and user friendliness concerns, addresses the completeness and accuracy issues raised in Appendix 1 to NUREG-0654, and uses objective and observable values.

This EAL is not part of an EAL set within the overall EAL scheme. This EAL is based upon the effects that natural or technological hazard events may have on the facility that are considered

to be precursors to a more significant event or condition, or have potential impacts that warrant emergency notification to local, State, and Federal authorities. Specific hazards addressed include:

- Tornado strike within the protected area;
- Internal room or area flooding requiring electrical isolation of a safety system component;
- Movement in the protected area impeded by an offsite event (gaseous);
- An external event that prohibits the plant staff from accessing the site; and
- Other site-specific events.

This stand-alone initiating condition is appropriate and consistent with guidance provided in NUREG-0654/FEMA-REP-1, and does not require an initiating condition set within the overall emergency classification scheme. This initiating condition is primarily intended to ensure that key ERO members and OROs are aware of the hazardous event affecting the plant site, and that post-event damage assessments are promptly implemented. In addition, other events that may impact the effective implementation of the site emergency plan are considered in this EAL. Indications of hazard-induced damage to safety systems are bounded by indications available in initiating conditions SA9 or CA6. Indications of hazard-induced damage to components containing radioactive materials are bounded by indications available in the fission product barrier matrix, as well as in EALs RA1, RS1, or RG1.

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

3.5.4 CPNPP EAL HU4 [HU4]

The licensee chose to modify this EAL by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. However, based on its review, the NRC staff has verified that the numbering, sequencing, and format of this EAL are consistent with the overall EAL scheme development guidance and with the site-specific implementation strategies provided, and are, therefore, considered part of a standard EAL scheme. The NRC staff also verified that the EAL set is worded in a manner that addresses human factors engineering and user friendliness concerns, addresses the completeness and accuracy issues raised in Appendix 1 to NUREG-0654, and uses objective and observable values.

This EAL is not part of an EAL set within the overall EAL scheme. This EAL is based upon the effect that fires may have on the facility that may be indicative of a potential degradation of the level of safety of the plant. It is primarily intended to ensure that key ERO members and OROs are aware of the fire, and that post-event damage assessments are promptly implemented.

This stand-alone initiating condition is appropriate and consistent with guidance provided in NUREG-0654/FEMA-REP-1, and does not require an initiating condition set within the overall emergency classification scheme. Indications of a protracted fire causing damage to safety systems are bounded by indications available in initiating conditions SA6 or CA9. Indications of a protracted fire involving radioactive materials are bounded by indications available in the fission product barrier matrix, as well as in EALs RA1, RS1, or RG1.

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

3.5.5 CPNPP EAL HA5 [HA5]

Based on its review, the NRC staff has verified that the numbering, sequencing, and format of this EAL are consistent with the overall EAL scheme development guidance and with the plant-specific implementation strategies provided, and are, therefore, considered part of a standard EAL scheme. The NRC staff also verified that the EAL set is worded in a manner that addresses human factors engineering and user friendliness concerns, addresses the completeness and accuracy issues raised in Appendix 1 to NUREG-0654, and uses objective and observable values.

This EAL is not part of an EAL set within the overall EAL scheme. This EAL is based upon the effect that toxic, corrosive, asphyxiant or flammable gases may have on the facility that precludes or impedes access to equipment necessary to maintain normal plant operation, or required for a normal plant cooldown and shutdown.

This stand-alone initiating condition is appropriate and consistent with guidance provided in NUREG-0654/FEMA-REP-1, and does not require an initiating condition set within the overall emergency classification scheme. This initiating condition is primarily intended to ensure that the plant ERO is activated to support the control room in removing the impediment to normal access to the affected area or room. Indications of a protracted loss of access to equipment necessary for normal plant operations, cooldown, or shutdown are bounded by indications available in the fission product barrier matrix, as well as initiating conditions RS1 and RG1.

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

3.5.6 CPNPP EAL Set HA6/HS6 [HA6/HS6]

Based on its review, the NRC staff has verified that the numbering, sequencing, and format of this EAL set are consistent with the overall EAL scheme development guidance and with the plant-specific implementation strategies provided, and are, therefore, considered part of a standard EAL scheme. The NRC staff also verified that the EAL set is worded in a manner that

addresses human factors engineering and user friendliness concerns, addresses the completeness and accuracy issues raised in Appendix 1 to NUREG-0654, and uses objective and observable values.

This EAL set is based upon control room evacuation with the inability to control critical plant systems remotely.

The NRC staff has verified that the progression from Alert to SAE is appropriate and consistent with EAL scheme development guidance.

- HA6 - This initiating condition addresses an evacuation of the control room that results in transfer of plant control to alternate locations outside the control room.

- HS6 - This initiating condition addresses an evacuation of the control room that results in transfer of plant control to alternate locations, and the control of a key safety function cannot be reestablished in a timely manner.

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

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

3.5.7 CPNPP EAL Set HU7/HA7/HS7/HG7 [HU7/HA7/HS7/HG7]

Based on its review, the NRC staff has verified that the numbering, sequencing, and format of this EAL set are consistent with the overall EAL scheme development guidance and with the plant-specific implementation strategies provided, and are, therefore, considered part of a standard EAL scheme. The NRC staff also verified that the EAL set is worded in a manner that addresses human factors engineering and user friendliness concerns, addresses the completeness and accuracy issues raised in Appendix 1 to NUREG-0654, and uses objective and observable values.

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

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

- HU7 - This initiating condition addresses unanticipated conditions not addressed explicitly elsewhere but that warrant declaration of an emergency because conditions exist that are believed by the Emergency Director to fall under the emergency classification level description for a UE.

- HA7 - This initiating condition addresses unanticipated conditions not addressed explicitly elsewhere but that warrant declaration of an emergency because

conditions exist that are believed by the Emergency Director to fall under the emergency classification level description for an Alert.

- HS7 - This initiating condition addresses unanticipated conditions not addressed explicitly elsewhere but that warrant declaration of an emergency because conditions exist that are believed by the Emergency Director to fall under the emergency classification level description for an SAE.

- HG7 - This initiating condition addresses unanticipated conditions not addressed explicitly elsewhere but that warrant declaration of an emergency because conditions exist that are believed by the Emergency Director to fall under the emergency classification level description for a GE.

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

3.6 Category 'S' - System Malfunction

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

The licensee chose to modify this EAL set by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. However, based on its review, the NRC staff has verified that the numbering, sequencing, and format of this EAL set are consistent with the overall EAL scheme development guidance and with the site-specific implementation strategies provided, and are, therefore, considered part of a standard EAL scheme. The NRC staff also verified that the EAL set is worded in a manner that addresses human factors engineering and user friendliness concerns, addresses the completeness and accuracy issues raised in Appendix 1 to NUREG-0654, and uses objective and observable values.

This EAL set is based upon a loss of available AC power sources to the emergency busses.

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

- SU1 - This initiating condition addresses a prolonged loss of offsite power.

- SA1 - This initiating condition 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.

- SS1 - This initiating condition 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.

- SG1 - This initiating condition addresses a prolonged loss of all power sources to AC emergency buses.

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

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

3.6.2 CPNPP EAL Set SU3/SA3 [SU2/SA2]

The licensee chose to modify this EAL set by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. However, based on its review, the NRC staff has verified that the numbering, sequencing, and format of this EAL set are consistent with the overall EAL scheme development guidance and with the site-specific implementation strategies provided, and are, therefore, considered part of a standard EAL scheme. The NRC staff also verified that the EAL set is worded in a manner that addresses human factors engineering and user friendliness concerns, addresses the completeness and accuracy issues raised in Appendix 1 to NUREG-0654, and uses objective and observable values.

This EAL set is based upon the effect that a loss of available indicators in the control room has on the facility.

The NRC staff has 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 indications available in the fission product barrier matrix, as well as in EALs RS1 and RG1.

- SU3 - This initiating condition addresses the difficulty associated with monitoring normal plant conditions without the ability to obtain safety system parameters from within the control room.

- SA3 - This initiating condition 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.

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

3.6.3 CPNPP EAL SU4 [SU3]

Based on its review, the NRC staff has verified that the numbering, sequencing, and format of this EAL are consistent with the overall EAL scheme development guidance and with the plant-specific implementation strategies provided, and are, therefore, considered part of a standard EAL scheme. The NRC staff also verified that the EAL set is worded in a manner that addresses human factors engineering and user friendliness concerns, addresses the completeness and accuracy issues raised in Appendix 1 to NUREG-0654, and uses objective and observable values.

This EAL is not part of an EAL set within the overall EAL scheme. The intent of the EAL is to ensure that an EAL is declared when RCS activity is greater than Technical Specification allowable limits.

This stand-alone initiating condition is appropriate and consistent with guidance provided in NUREG-0654/FEMA-REP-1, and does not require an initiating condition set within the overall emergency classification scheme. This UE initiating condition is primarily intended to ensure that key ERO members are aware of the elevated reactor coolant activity and support the control room in implementation of appropriate response measures. Escalation of the emergency classification is bounded by the fission product barrier matrix, as well as initiating conditions RA1, RS1, and RG1.

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

3.6.4 CPNPP EAL SU5 [SU4]

The licensee chose to modify this EAL by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. However, based on its review, the NRC staff has verified that the numbering, sequencing, and format of this EAL are consistent with the overall EAL scheme development guidance and with the site-specific implementation strategies provided, and are, therefore, considered part of a standard EAL scheme. The NRC staff also verified that the EAL set is worded in a manner that addresses human factors engineering and user friendliness concerns, addresses the completeness and accuracy issues raised in Appendix 1 to NUREG-0654, and uses objective and observable values.

This EAL is not part of an EAL set within the overall EAL scheme. The intent of the EAL is to ensure that an EAL is declared when the plant has indications of RCS leakage. By design, this EAL is redundant with corresponding indicators from a loss or potential loss of fission product barriers, as well as radiation monitoring, to ensure reactor and/or fission product barrier events are recognized.

This stand-alone initiating condition is appropriate and consistent with guidance provided in NUREG-0654/FEMA-REP-1, and does not require an initiating condition set within the overall

emergency classification scheme. This UE initiating condition is primarily intended to ensure that key ERO members are aware of the RCS leakage and support the control room in implementation of appropriate response measures. Escalation of the emergency classification is bounded by the fission product matrix, as well as initiating conditions RA1, RS1, and RG1.

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

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

Based on its review, the NRC staff has verified that the numbering, sequencing, and format of this EAL set are consistent with the overall EAL scheme development guidance and with the plant-specific implementation strategies provided, and are, therefore, considered part of a standard EAL scheme. The NRC staff also verified that the EAL set is worded in a manner that addresses human factors engineering and user friendliness concerns, addresses the completeness and accuracy issues raised in Appendix 1 to NUREG-0654, and uses objective and observable values.

This EAL set is based upon the effect that a failure of the reactor protection system (RPS) may have on the plant.

The NRC staff has verified that the progression from UE to SAE is appropriate and consistent with EAL scheme development guidance. The GE classification level for this event is bounded by indications available in the fission product barrier matrix, as well as in EAL RG1.

- SU6 - This initiating condition addresses an event where the RPS fails to automatically shut down the reactor when required, yet the reactor is successfully shut down by taking manual action(s) at the reactor control consoles. An additional threshold was added to capture the failure of a manual shutdown action to shut down the plant with a subsequent manual action (or automatic) action being successful in shutting down the plant. In either case, the plant is shut down.

- SA6 - This initiating condition addresses 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.

- SS6 - This initiating condition addresses an event where the RPS fails to automatically shut down the reactor when required, all 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, the RCS, or both.

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

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

3.6.6 CPNPP EAL SU7 [SU6]

The licensee chose to modify this EAL by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. However, based on its review, the NRC staff has verified that the numbering, sequencing, and format of this EAL are consistent with the overall EAL scheme development guidance and with the site-specific implementation strategies provided, and are, therefore, considered part of a standard EAL scheme. The NRC staff also verified that the EAL set is worded in a manner that addresses human factors engineering and user friendliness concerns, addresses the completeness and accuracy issues raised in Appendix 1 to NUREG-0654, and uses objective and observable values.

This EAL is not part of an EAL set within the overall EAL scheme. The intent of the EAL is to highlight the importance of emergency communications by ensuring that an EAL is declared if normal communication methods for onsite and offsite personnel, or with OROs, including the NRC, are lost.

This stand-alone initiating condition is appropriate and consistent with guidance provided in NUREG-0654/FEMA-REP-1, and does not require an initiating condition set within the overall emergency classification scheme. It 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 communication methods derived for this EAL are consistent with the overall EAL scheme development guidance, address the plant-specific implementation strategies provided, and are consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4).

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

3.6.7 CPNPP EAL SU8 [SU7]

Based on its review, the NRC staff has verified that the numbering, sequencing, and format of this EAL are consistent with the overall EAL scheme development guidance and with the plant-specific implementation strategies provided, and are, therefore, considered part of a standard EAL scheme. The NRC staff also verified that the EAL set is worded in a manner that

addresses human factors engineering and user friendliness concerns, addresses the completeness and accuracy issues raised in Appendix 1 to NUREG-0654, and uses objective and observable values.

This EAL is not part of an EAL set within the overall EAL scheme. This EAL addresses a failure of one or more containment penetrations to automatically isolate (close) when required by an actuation signal. The intent of the EAL is to ensure that an EAL is declared when the plant has indications of containment barrier degradation. It also addresses an event that results in high containment pressure with a concurrent failure of containment pressure control systems. By design, this EAL is redundant with corresponding indicators from a loss or potential loss of fission product barriers, as well as radiation monitoring, to ensure reactor and/or fission product barrier events are recognized.

This stand-alone initiating condition is appropriate and consistent with guidance provided in NUREG-0654/FEMA-REP-1, and does not require an initiating condition set within the overall emergency classification scheme. It is primarily intended to ensure that key ERO members and OROs are aware of significant challenges to containment integrity, and that compensatory measures are promptly implemented. The escalation of the emergency classification level is bounded by indications available in the fission product barrier table, as well as in EALs RA1, RS1, and RG1.

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

3.6.8 CPNPP EAL Set SS2/SG1.2 [SS8/SG8]

The licensee chose to modify this EAL set by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. However, based on its review, the NRC staff has verified that the numbering, sequencing, and format of this EAL set are consistent with the overall EAL scheme development guidance and with the site-specific implementation strategies provided, and are, therefore, considered part of a standard EAL scheme. The NRC staff also verified that the EAL set is worded in a manner that addresses human factors engineering and user friendliness concerns, addresses the completeness and accuracy issues raised in Appendix 1 to NUREG-0654, and uses objective and observable values.

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

The NRC staff has verified that the progression from SAE to GE is appropriate and consistent with guidance provided in NUREG-0654/FEMA-REP-1.

- SS2 - This initiating condition addresses a loss of Vital DC power which compromises the ability to monitor and control safety systems.

- SG1.2 - This initiating condition addresses a concurrent and prolonged loss of both AC and Vital DC power. This EAL was added in Revision 6 to NEI 99-01 to incorporate lessons learned from the Fukushima event of 2011, as well as new EAL studies.

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

3.6.9 CPNPP EAL SA9 [SA9]

Based on its review, the NRC staff has verified that the numbering, sequencing, and format of this EAL are consistent with the overall EAL scheme development guidance and with the plant-specific implementation strategies provided, and are, therefore, considered part of a standard EAL scheme. The NRC staff also verified that the EAL set is worded in a manner that addresses human factors engineering and user friendliness concerns, addresses the completeness and accuracy issues raised in Appendix 1 to NUREG-0654, and uses objective and observable values.

This EAL is not part of an EAL set within the overall EAL scheme. The intent of the EAL is to ensure that an EAL is declared when a hazardous event leads to potential damage to safety systems needed for the current operating mode. The hazardous events of interest include, but are not limited to, an earthquake, flooding, high winds, tornado strike, explosion, fire, or any other hazard applicable for a specific site.

This stand-alone initiating condition is appropriate and consistent with guidance provided in NUREG-0654/FEMA-REP-1, and does not require an initiating condition set within the overall emergency classification scheme. It 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. The SAE and GE classification levels for this accident progression are bounded by indications available in the fission product barrier matrix, as well as in EALs RS1 and RG1.

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

3.7 Review Summary

The NRC staff has reviewed the technical bases for the proposed EAL scheme, the modifications from NEI 99-01, Revision 6, and the licensee's evaluation of the proposed changes. The licensee chose to modify its proposed EAL scheme from the generic EAL scheme development guidance provided in NEI 99-01, Revision 6, in order to adopt a format that is better aligned with how it currently implements its EALs, as well as with plant-specific writer's guides and preferences. The NRC staff verified that these modifications do not alter the intent of any specific EAL within a set, category, or within the entire EAL scheme described in NEI 99-01, Revision 6. Thus, the NRC staff concludes that the proposed changes meet the requirements in Appendix E to 10 CFR Part 50 and the planning standards of 10 CFR 50.47(b).

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

Therefore, the NRC staff concludes that the licensee's proposed EAL scheme is acceptable and provides reasonable assurance that the licensee can and will take adequate protective measures in the event of a radiological emergency. Specifically, the staff concludes that the licensee's site-specific EAL bases document provided by Enclosure 1 of the letter dated January 27, 2016, and as supplemented by letter dated March 3, 2016, is acceptable for implementation.

4.0 STATE CONSULTATION

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

5.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to the installation or use of facility components located within the restricted area as defined in 10 CFR Part 20 because the amendments approve an acceptable EAL scheme which is required for operation of the facility. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding published in the *Federal Register* on August 14, 2015 (80 FR 48923). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

6.0 CONCLUSION

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

7.0 REFERENCES

1. Flores, R., Luminant Generation Company LLC, letter to U.S. Nuclear Regulatory Commission, "License Amendment Request 15-003 for Revision to Unit 1 and Unit 2 Emergency Action Levels," dated June 30, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15191A161).

2. Peters, K. J., Luminant Generation Company LLC, letter to U.S. Nuclear Regulatory Commission, "Response to Request for Additional Information Regarding License Amendment Request 15-003 for Revision to Unit 1 and Unit 2 Emergency Action Levels," dated January 27, 2016 (ADAMS Accession No. ML16039A165).

3. Peters, K. J., Luminant Generation Company LLC, letter to U.S. Nuclear Regulatory Commission, "Supplemental to Response to Request for Additional Information Regarding License Amendment Request 15-003 for Revision to Unit 1 and Unit 2 Emergency Action Levels," dated March 3, 2016 (ADAMS Accession No. ML16077A012).

4. Nuclear Energy Institute, NEI 99-01, Revision 4, "Methodology for Development of Emergency Action Levels," January 2003 (ADAMS Accession No. ML041470143); NEI 99-01, Revision 5, "Methodology for Development of Emergency Action Levels," February 2008 (ADAMS Accession No. ML080450149); and NEI 99-01, Revision 6, "Development of Emergency Action Levels for Non-Passive Reactors," November 2012 (ADAMS Accession No. ML12326A805).

5. Thaggard, M., U.S. Nuclear Regulatory Commission, letter to Susan Perkins-Grew, Nuclear Energy Institute, "U.S. Nuclear Regulatory Commission Review and Endorsement of NEI-99-01, Revision 6, dated November, 2012," dated March 28, 2013 (ADAMS Accession No. ML12346A463).

6. Lyon, C. F., U.S. Nuclear Regulatory Commission, e-mail to Timothy Hope, Luminant Generating Company LLC, "Comanche Peak Nuclear Power Plant, Units 1 and 2 - Request for Additional Information Regarding License Amendment Request 15-003 for Revision to Emergency Action Levels (CAC Nos. MF6407 and MF6408)," dated November 19, 2015 (ADAMS Accession No. ML15323A202).

7. Singal, B. K., U.S. Nuclear Regulatory Commission, letter to Rafael Flores, Luminant Generating Company LLC, "Comanche Peak Nuclear Power Plant, Units 1 and 2 - Request for Additional Information Regarding License Amendment Request 15-003

for Revision to Emergency Action Levels (CAC Nos. MF6407 and MF6408)," dated December 16, 2015 (ADAMS Accession No. ML15345A011).

8. U.S. Nuclear Regulatory Commission, Generic Letter 79-50, dated October 10, 1979 (ADAMS Accession No. ML031320278).

9. U.S. Nuclear Regulatory Commission and Federal Emergency Management Agency, 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 (ADAMS Accession No. ML040420012).

10. U.S. Nuclear Regulatory Commission, Regulatory Guide (RG) 1.101, Revision 2, "Emergency Planning and Preparedness for Nuclear Power Reactors," October 1981 (ADAMS Accession No. ML090440294); RG 1.101, Revision 3, August 1992 (ADAMS Accession No. ML003740302); and RG 1.101, Revision 4, July 2003 (ADAMS Accession No. ML032020276).

11. Nuclear Management and Resources Council/National Environmental Studies Project (NUMARC/NESP)-007, Revision 2, "Methodology for Development of Emergency Action Levels," January 1992 (ADAMS Accession No. ML041120174).

12. Miller, C. G., U.S. Nuclear Regulatory Commission, letter to Alan Nelson, Nuclear Energy Institute, "U.S. Nuclear Regulatory Commission Review and Endorsement of NEI-99-01, Revision 5, dated February 2008," dated February 22, 2008 (ADAMS Accession No. ML080430535).

13. U.S. Nuclear Regulatory Commission, Regulatory Issue Summary (RIS) 2003-18, "Use of NEI-99-01, 'Methodology for Development of Emergency Action Levels,' Revision 4, dated January 2003," dated October 8, 2003 (ADAMS Accession No. ML032580518); RIS 2003-18, Supplement 1, dated July 13, 2004 (ADAMS Accession No. ML041550395); and RIS 2003-18, Supplement 2, dated December 12, 2005 (ADAMS Accession No. ML051450482).

14. U.S. Nuclear Regulatory Commission, Order EA-12-051, "Order Modifying Licenses with Regard to Reliable Spent Fuel Pool Instrumentation," dated March 12, 2012 (ADAMS Accession No. ML12340A703).

15. U.S. Nuclear Regulatory Commission, Bulletin 2005-02, "Emergency Preparedness and Response Actions for Security-Based Events," dated July 18, 2005 (ADAMS Accession No. ML051740058).

16. U.S. Nuclear Regulatory Commission, Regulatory Issue Summary 2006-12, "Endorsement of Nuclear Energy Institute Guidance 'Enhancements to Emergency

Preparedness Programs for Hostile Action,'" dated July 19, 2006 (ADAMS Accession No. ML072670421).

Principal Contributor: R. Hoffman, NSIR

Date: June 14, 2016

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

Sincerely,

/RA/

Margaret M. Watford, Project Manager
Plant Licensing Branch IV-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-445 and 50-446

Enclosures:
1. Amendment No. 166 to NPF-87
2. Amendment No. 166 to NPF-89
3. Safety Evaluation

cc: Listserv

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ADAMS Accession No. ML16137A056 ***memo dated**

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