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Description:	SAN ONOFRE NUCLEAR GENERATING STATION, UNITS 1, 2, AND 3AND THE INDEPENDENT SPENT FUEL STORAGE INSTALLATION - ISSUANCE OF AMENDMENTS RE: CHANGES TO THE EMERGENCY ACTION LEVEL SCHEME (TAC NOS. MF3838, MF3839, AND MF3840)
Filer:	Raquel Kravitz
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

June 5, 2015

Mr. Thomas J. Palmisano
Vice President and Chief Nuclear Officer
Southern California Edison Company
San Onofre Nuclear Generating Station
P.O. Box 128
San Clemente, CA 92674-0128

SUBJECT: SAN ONOFRE NUCLEAR GENERATING STATION, UNITS 1, 2, AND 3 AND THE INDEPENDENT SPENT FUEL STORAGE INSTALLATION - ISSUANCE OF AMENDMENTS RE: CHANGES TO THE EMERGENCY ACTION LEVEL SCHEME (TAC NOS. MF3838, MF3839, AND MF3840)

Dear Mr. Palmisano:

The U.S. Nuclear Regulatory Commission (NRC) has issued the enclosed Amendment No. 166 to Facility Operating License No. DPR-13, Amendment No. 228 to Facility Operating License No. NPF-10, and Amendment No. 221 to Facility Operating License No. NPF-15 for San Onofre Nuclear Generating Station (SONGS), Units 1, 2, and 3, respectively, and the independent spent fuel storage installation, in response to the application from Southern California Edison (SCE or the licensee) dated March 31, 2014, as supplemented by letters dated October 21, 2014, and April 29, 2015. The amendments revise the SONGS emergency action level (EAL) scheme to reflect the low likelihood of any credible accident at the plant in its permanently shutdown and defueled condition that could result in radiological releases requiring offsite protective measures. The changes were submitted to the NRC for approval in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.54(q)(4) and 10 CFR Part 50, Appendix E, Section IV.B.2.

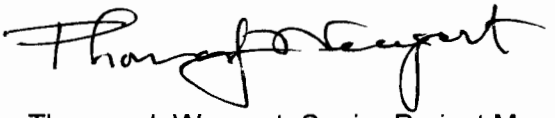
The amendments revise the SONGS EAL scheme to comply with the requirements of 10 CFR 50.47, "Emergency plans," and 10 CFR Part 50, Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities," subject to the exemptions granted to the licensee by NRC letter dated June 4, 2015. The EAL scheme revision is based on the NRC-endorsed Nuclear Energy Institute (NEI) document NEI 99-01, Revision 6, "Development of Emergency Action Levels for Non-Passive Reactors," dated November 2012. NEI 99-01, Revision 6 provides guidance for permanently shutdown and defueled nuclear power plants for the development of a site-specific emergency classification scheme.

The NRC staff concluded that the revised SONGS EAL scheme provides (1) an adequate basis for finding an acceptable state of emergency preparedness, and (2) reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency based on the permanently shutdown and defueled condition of the SONGS facility.

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

Due to the impact these amendments have on various stakeholders, the NRC staff requests that SCE maintain open communications with the NRC's SONGS licensing project manager about the status of the completion of the implementation of these amendments.

Sincerely,



Thomas J. Wengert, Senior Project Manager
Plant Licensing IV-2 and Decommissioning
Transition Branch
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-206, 50-361,
50-362, and 72-041

Enclosures:
1. Amendment No. 166 to DPR-13
2. Amendment No. 228 to NPF-10
3. Amendment No. 221 to NPF-15
4. Safety Evaluation

cc: Listserv

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

SOUTHERN CALIFORNIA EDISON COMPANY

SAN DIEGO GAS AND ELECTRIC COMPANY

THE CITY OF RIVERSIDE, CALIFORNIA

DOCKET NO. 50-206

SAN ONOFRE NUCLEAR GENERATING STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 166
License No. DPR-13

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

   A. The application for amendment by Southern California Edison Company, et al. (SCE or the licensee), dated March 31, 2014, as supplemented by letters dated October 21, 2014, and April 29, 2015, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, by Amendment No. 166 , Facility Operating License No. DPR-13 is hereby amended to authorize revision to the San Onofre Nuclear Generating Station Emergency Action Level scheme as set forth in the Southern California Edison application dated March 31, 2014, as supplemented by letters dated October 21, 2014, and April 29, 2015, and evaluated in the NRC staff's safety evaluation dated June 5 , 2015.

3. This license amendment is effective as of the date of its issuance and shall be implemented within 60 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Catherine Haney

Catherine Haney, Director
Office of Nuclear Material Safety and Safeguards

Date of Issuance: June 5, 2015

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

SOUTHERN CALIFORNIA EDISON COMPANY

SAN DIEGO GAS AND ELECTRIC COMPANY

THE CITY OF RIVERSIDE, CALIFORNIA

DOCKET NO. 50-361

SAN ONOFRE NUCLEAR GENERATING STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 228
License No. NPF-10

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

   A. The application for amendment by Southern California Edison Company, et al. (SCE or the licensee), dated March 31, 2014, as supplemented by letters dated October 21, 2014, and April 29, 2015, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, by Amendment No. 228, Facility Operating License No. NPF-10 is hereby amended to authorize revision to the San Onofre Nuclear Generating Station Emergency Action Level scheme as set forth in the Southern California Edison application dated March 31, 2014, as supplemented by letters dated October 21, 2014, and April 29, 2015, and evaluated in the NRC staff's safety evaluation dated June 5 , 2015.

3. This license amendment is effective as of the date of its issuance and shall be implemented within 60 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Michele G. Evans for

William M. Dean, Director
Office of Nuclear Reactor Regulation

Date of Issuance: June 5, 2015

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

SOUTHERN CALIFORNIA EDISON COMPANY

SAN DIEGO GAS AND ELECTRIC COMPANY

THE CITY OF RIVERSIDE, CALIFORNIA

DOCKET NO. 50-362

SAN ONOFRE NUCLEAR GENERATING STATION, UNIT 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 221
License No. NPF-15

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

   A. The application for amendment by Southern California Edison Company, et al. (SCE or the licensee), dated March 31, 2014, as supplemented by letters dated October 21, 2014, and April 29, 2015, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, by Amendment No. 221, Facility Operating License No. NPF-15 is hereby amended to authorize revision to the San Onofre Nuclear Generating Station Emergency Action Level scheme as set forth in the Southern California Edison application dated March 31, 2014, as supplemented by letters dated October 21, 2014, and April 29, 2015, and evaluated in the NRC staff's safety evaluation dated June 5 , 2015.

3. This license amendment is effective as of the date of its issuance and shall be implemented within 60 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Michele G. Evans for

William M. Dean, Director
Office of Nuclear Reactor Regulation

Date of Issuance: June 5, 2015

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. DPR-13,

AMENDMENT NO. 228 TO FACILITY OPERATING LICENSE NO. NPF-10

AND AMENDMENT NO. 221 TO FACILITY OPERATING LICENSE NO. NPF-15

SOUTHERN CALIFORNIA EDISON COMPANY

SAN DIEGO GAS AND ELECTRIC COMPANY

THE CITY OF RIVERSIDE, CALIFORNIA

SAN ONOFRE NUCLEAR GENERATING STATION, UNITS 1, 2 AND 3

AND THE INDEPENDENT SPENT FUEL STORAGE INSTALLATION

DOCKET NOS. 50-206, 50-361, 50-362, AND 72-41

1.0 INTRODUCTION

San Onofre Nuclear Generating Station (SONGS), Units 1, 2, and 3 are decommissioning nuclear power reactors located approximately 45 miles southeast of Long Beach, California in San Diego County, approximately 62 miles southeast of Los Angeles and approximately 51 miles northwest of San Diego, on an 84 acre site located entirely within the Camp Pendleton Marine Corps Base. Southern California Edison (SCE or the licensee) is the holder of Facility Operating License Nos. DPR-13 (for SONGS Unit 1), NPF-10 (for SONGS Unit 2), and NPF-15 (for SONGS Unit 3), issued under the Atomic Energy Act of 1954, as amended, and Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," which authorize the licensee to possess and store spent nuclear fuel and greater-than-Class C radioactive waste at the permanently shutdown and defueled SONGS facility.

SONGS Unit 1 was permanently shut down on November 30, 1992. All fuel assemblies were removed from the Unit 1 reactor on March 6, 1993, and Unit 1 is in the decommissioning phase. The SONGS Unit 1 above-ground structures have been dismantled, and the spent fuel from Unit 1 is stored in the onsite dry cask storage facility (independent spent fuel storage installation (ISFSI)) and in the General Electric-Hitachi Morris facility located in Morris, Illinois.

SONGS Units 2 and 3 have been permanently shut down since January 2012. After the reactors were shut down, all fuel assemblies were removed from the reactor vessels and placed

in the spent fuel pools (SFPs) on October 15, 2012, at Unit 3 and on July 18, 2013, at Unit 2. Spent fuel is currently stored onsite in the SFPs and in the onsite ISFSI.

By letter dated June 12, 2013 (Reference 1), SCE submitted a certification to the U.S. Nuclear Regulatory Commission (NRC) indicating its intention to permanently cease power operations at SONGS Units 2 and 3 as of June 7, 2013, pursuant to 10 CFR 50.82(a)(1)(i). By letters dated June 28, 2013 (Reference 2), and July 22, 2013 (Reference 3), SCE submitted certifications of permanent removal of fuel from the Unit 3 and Unit 2 reactor vessels as of October 5, 2012, and July 18, 2013, respectively, pursuant to 10 CFR 50.82(a)(1)(ii). Upon docketing of these certifications, the 10 CFR Part 50 licenses for SONGS Units 2 and 3 no longer authorize operation of the reactors or emplacement or retention of fuel into the reactor vessels, as specified in 10 CFR 50.82(a)(2).

By letter dated March 31, 2014 (Reference 4), SCE requested a license amendment to revise the SONGS Emergency Action Level (EAL) scheme. By letter dated September 18, 2014 (Reference 5), the NRC staff provided a request for additional information (RAI) regarding the license amendment requests for the EAL scheme change. By letter dated October 21, 2014 (Reference 6), SCE provided responses to the RAI regarding the EAL scheme. By letter dated April 29, 2015 (Reference 15), SCE clarified the implementation period for these amendments.

The supplemental letter submitted by SCE dated April 29, 2015, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the NRC staff's original proposed no significant hazards consideration determination as published in the *Federal Register* (FR) on December 23, 2014 (79 FR 77048).

1.1 Discussion

SCE submitted the proposed SONGS EAL scheme to the NRC for approval in accordance with Section IV.B.2 to Appendix E of Part 50, contingent on the NRC's prior approval of exemptions requested by SCE from certain requirements of 10 CFR 50.47, "Emergency plans," and Appendix E to Part 50, "Emergency Planning and Preparedness for Production and Utilization Facilities." By letter dated June 4, 2015 (Reference 7), the NRC granted SCE exemptions from certain emergency planning (EP) requirements in 10 CFR 50.47 and 10 CFR 50, Appendix E, in accordance with 10 CFR 50.12, and based, in part, on the low risks associated with permanently shutdown and defueled nuclear power reactors.

In granting the requested exemptions, the NRC primarily relied on the SONGS site-specific analyses, which provided reasonable assurance that (1) an offsite radiological release would not exceed the U.S. Environmental Protection Agency's (EPA's) protective action guides (PAGs) at the site's exclusion area boundary (EAB) for the design-basis accidents (DBAs) applicable to the SONGS facility in its permanently shutdown and defueled state; and (2) in the unlikely event a severe, beyond-DBA results in a loss of all cooling to the spent fuel stored in the SONGS SFPs, sufficient time would be available to initiate appropriate mitigating actions, and if needed, for offsite authorities to implement protective actions using a comprehensive emergency management plan (CEMP)[1] approach to protect the health and safety of the public. The

[1] A CEMP in this context, also referred to as an emergency operations plan (EOP), is addressed in the Federal Emergency Management Agency's (FEMA) Comprehensive Preparedness Guide (CPG) 101, "Developing and Maintaining Emergency Operations Plans." CPG 101 is the foundation for State, territorial, Tribal, and local

Commission's approval of the requested exemptions is documented in a Staff Requirements Memorandum (SRM), dated March 2, 2015 (Reference 8), responding to SECY-14-0144, "Request by Southern California Edison for Exemptions from Certain Emergency Planning Requirements," dated December 17, 2014 (Reference 9).

SCE proposes to change the entire EAL scheme to reflect the permanently shutdown and defueled status of SONGS. In accordance with Section IV.B.2 to Appendix E of Part 50, the licensee must receive NRC approval before implementing a change to its entire EAL scheme. SCE states that the proposed changes to the EAL scheme are consistent with the methodology for permanently shutdown and defueled reactors provided by the Nuclear Energy Institute (NEI) document NEI 99-01, "Development of Emergency Action Levels for Non-Passive Reactors," Revision 6, dated November 2012 (Reference 10), which has been endorsed by the NRC.

In a separate application dated March 31, 2014 (Reference 16), SCE submitted a license amendment request to replace its existing emergency plan with a Permanently Defueled Emergency Plan (PDEP), based on the permanently shutdown and defueled status of the facility. The proposed EAL Technical Bases Manual, reflecting the proposed EAL scheme change reviewed by the NRC staff under this licensing action, is identified as Volume 2 of the SONGS PDEP, as shown in the Enclosure 2 of Reference 6. The PDEP amendments were approved by the NRC by letter dated June 5, 2015 (Reference 17).

2.0 REGULATORY EVALUATION

Paragraph 50.47(b)(4) of 10 CFR Part 50 provides the requirement for an EAL scheme. As exempted for SONGS, it states:

> 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~~.

This requirement emphasizes 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, as exempted for SONGS, states:

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emergency planning in the United States. It promotes a common understanding of the fundamentals of risk-informed planning and decision making and helps planners at all levels of government in their efforts to develop and maintain viable, all-hazards, all-threats emergency plans. An EOP is flexible enough for use in all emergencies. It describes how people and property will be protected; details who is responsible for carrying out specific actions; identifies the personnel, equipment, facilities, supplies and other resources available; and outlines how all actions will be coordinated. A CEMP is often referred to as a synonym for "all hazards planning."

1. 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.*~~ The initial emergency action levels shall be discussed and agreed on by the applicant or licensee and state and local governmental authorities, and approved by the NRC. Thereafter, emergency action levels shall be reviewed with the State and local governmental authorities on an annual basis.

2. 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. Licensees shall follow the change process in § 50.54(q) for all other emergency action level changes.

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

1. The entire spectrum of emergency conditions that involve the alerting or activating of progressively larger segments of the total emergency organization shall be described. The communication steps to be taken to alert or activate emergency personnel under each class of emergency shall be described. Emergency action levels (based not only on onsite ~~and offsite~~ radiation monitoring information but also on readings from a number of sensors that indicate a potential emergency, ~~*such as the pressure in containment and the response of the Emergency Core Cooling System)*~~ for notification of offsite agencies shall be described. The existence, but not the details, of a message authentication scheme shall be noted for such agencies. The emergency classes defined shall include: (1) notification of unusual events, (2) alert, ~~*(3) site area emergency, and (4) general emergency*~~. These classes are further discussed in NUREG-0654/FEMA-REP-1.

This review is based upon a revision to the SONGS EAL scheme provided in the licensee's application letter, and as supplemented by the licensee's responses to the NRC staff's RAIs. Enclosure 2 of the licensee's letter dated October 21, 2014 (Reference 6) contains the final version of the licensee's proposed site-specific EAL scheme for SONGS, which was reviewed by the NRC for acceptability.

As part of this review, the NRC staff assessed the site-specific modifications made by SCE to the guidance provided by NEI 99-01, Revision 6 (Reference 10). The purpose of NEI 99-01, Revision 6, is to provide guidance to nuclear power plant operators for the development of a

site-specific emergency classification scheme. The methodology described in this document is consistent with Federal regulations, and related NRC requirements and guidance. In particular, this methodology has been endorsed by the NRC, by letter dated March 28, 2013 (Reference 12), as an acceptable method for developing the EALs required by 10 CFR 50.47(b)(4), related sections of 10 CFR Part 50, Appendix E, and the associated planning standard evaluation elements of 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" (Reference 11). In addition, the NEI 99-01, Revision 6, methodology also provides guidance for permanently shutdown and defueled nuclear power reactors for the development of a site-specific emergency classification scheme.

3.0 TECHNICAL EVALUATION

3.1 Emergency Action Level Scheme

The licensee currently utilizes an EAL scheme based on NEI 99-01, "Methodology for Development of Emergency Action Levels," Revision 5, dated February 22, 2008 (Reference 13), that was approved by the NRC in a letter dated March 22, 2010 (Reference 14), as applied for an operating power reactor facility, with site-specific modifications due to design issues and/or licensee preference. The licensee is converting to an EAL scheme using the development guidance from NEI 99-01, Revision 6 (Reference 10), as applied to a permanently shutdown and defueled power reactor with fuel stored in an SFP and ISFSI, and with site-specific modifications for design differences and/or licensee preference.

As discussed in the NRC safety evaluation associated with the exemptions granted to SCE (Reference 7) from certain emergency planning requirements of 10 CFR 50.47 and Appendix E to 10 CFR Part 50, there are no longer any DBAs at SONGS that can result in a radiological release exceeding EPA PAGs beyond the EAB. Therefore, the NRC staff's assessment of the risks and consequences of a radiological release at SONGS, based on its permanently shutdown and defueled condition, concluded that the risks and consequences are insufficient to warrant classifications of a Site Area Emergency or General Emergency. As a result, the only initiating conditions (ICs) and EALs applicable to SONGS are either a Notification of Unusual Event or an Alert classification.

In its March 31, 2014, application and October 21, 2014, supplemental letter (References 4 and 6), SCE submitted its proposed EAL scheme for SONGS, along with its technical basis, and the EAL numbering scheme.

The proposed site-specific EAL scheme is unique to SONGS, as it contains site-specific designations and descriptions. However, to ensure consistency and regulatory stability, the NRC staff reviewed the proposed site-specific EAL scheme to ensure that it has the following key characteristics of an effective EAL scheme found in the endorsed guidance of NEI 99-01, Revision 6:

- Consistency (i.e., the EALs would lead to similar decisions under similar circumstances at different plants), up to and including standardization in intent, if not in actual wording;

- 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;
- Thoroughness in addressing and disposing of the issues of completeness and accuracy raised in Appendix 1 to NUREG-0654;
- Technical completeness for each classification level;
- Logical progression in classification for multiple events; and
- The use of objective and observable values.

The SONGS EAL technical basis document is an integral part of the emergency classification scheme. The material in this document supports proper emergency classification decision-making by providing informing background and development information in a readily accessible format. It can be referred to in training situations and when making an actual emergency classification, if necessary. The document is also useful for establishing configuration management controls for emergency preparedness-related equipment and explaining an emergency classification to offsite authorities.

To aid in understanding the nomenclature used in this safety evaluation, the proposed EAL scheme for SONGS includes two emergency classification levels (ECL): (1) Notification of Unusual Event (U), and (2) Alert (A). ICs for entry into each of the two ECLs are specified for conditions relating to:

- Abnormal Radiological Levels/Radiological Effluents (PD-A),
- Hazards and Other Conditions Affecting Plant Safety (PD-H),
- System Malfunction (PD-S), based on the permanently shutdown and defueled status of the facility with spent fuel stored onsite in a spent fuel pool, and
- Hazards and Other Conditions Affecting ISFSI (E-H).

For each IC, specific EAL threshold values are identified that would require the declaration of an ECL. The EAL scheme is intended to provide multiple and diverse threshold values for all of the emergency classification levels (Notification of Unusual Event and Alert) to ensure accurate EAL classification and timely declaration.

In applying the guidance in NEI 99-01, Revision 6, developers should attempt to keep their site-specific schemes as close to the generic guidance as possible to ensure that the intent of the generic ICs and EALs within the context of site-specific characteristics, such as, locale, plant design, operating features, terminology, etc., is met. SCE made the following site-specific changes to incorporate the generic EAL scheme, globally, throughout the proposed EAL scheme, as follows:

- Removed reference to the "Operating Mode" as it did not apply in a permanently defueled condition; and

- Removed the term "Example" from "Example Emergency Action Levels".

The NRC staff determined that these changes are administrative in nature, and as such, acceptable, since they do not impact the overall EAL scheme.

An evaluation of the acceptability of the EALs is provided in the following sections.

3.1.1 CATEGORY 'PD-A': ABNORMAL RADIOLOGICAL RELEASE/RADIOLOGICAL EFFLUENT

3.1.1.1 EAL PD-AU1, "Release of gaseous or liquid radioactivity greater than 2 times the ODCM [offsite dose calculation manual] limits for 60 minutes or longer"

This EAL addresses a potential or actual 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). It includes any gaseous or liquid radiological release, monitored or unmonitored, including those for which a radioactivity discharge permit is normally prepared.

The NRC staff verified that the SONGS implementation of this EAL, except for the site-specific changes identified below, is identical to the guidance provided in the permanently defueled station standard EAL scheme in NEI 99-01, Revision 6.

The licensee made the following site-specific changes to the generic EAL scheme, as follows:

- Inserted "ODCM" for "site specific effluent release controlling document."

- Revised the Notes under the 3rd bullet to delete "due to actions to isolate the release path, then" and substituted "indicating that the release path is isolated."

For the site-specific change to reference the ODCM, the NRC staff verified that SONGS implemented the developer notes for identifying the site-specific effluent release controlling document identified in the NEI 99-01, Revision 6, basis for this specific EAL. Because SONGS has implemented Generic Letter 89-01 (Reference 21), pursuant to the guidance, the ODCM is SONGS's site-specific effluent release controlling document. The revision to the note under the third bullet of the EAL is administrative and does not affect the applicability of the EAL.

Based on the NRC staff's review of this EAL, the NRC staff finds that the licensee-specific implementation method for this EAL includes the key characteristics of an effective EAL scheme described in Section 3.1 of this safety evaluation. While there are site-specific differences as to what is provided in the generic EAL development guidance, this EAL continues to meet the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and therefore, is acceptable for implementation.

3.1.1.2 EAL PD-AA1, "Release of gaseous or liquid radioactivity resulting in offsite dose greater than 10 mrem [millirem] TEDE [total effective dose equivalent] or 50 mrem thyroid CDE [committed dose equivalent]"

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 EPA PAGs. It includes both monitored and unmonitored releases. Releases of this magnitude represent an actual or potential substantial degradation of the level of safety of the plant, as indicated by a radiological release that significantly exceeds regulatory limits (e.g., a significant uncontrolled release).

The NRC staff verified that the SONGS implementation of this EAL, except for the site-specific changes identified below, is identical to the guidance provided in the permanently defueled station standard EAL scheme in NEI 99-01, Revision 6.

The licensee made the following site-specific changes to the generic EAL scheme by revising the Notes, as follows:

- Third bullet – deleted "due to actions to isolate the release path, then" and substituted "indicating that the release path is isolated."

- Fourth bullet – substituted "dose assessment results are available" for "the results from a dose assessment using actual meteorology are available."

The licensee made the following site-specific changes to the generic EAL scheme by revising the EALs, as follows:

- EAL 1: Added "equal to or" and site-specific monitor list and threshold values.

- EAL 2: Identified the EAB as the site-specific dose receptor point.

- EAL 3: Identified the EAB as the site-specific dose receptor point.

- EAL 4: Identified the EAB as the site-specific dose receptor point.

The revisions to the notes under the third bullet are administrative and do not affect the applicability of the EAL.

For the site-specific change to EAL 1, the licensee provides that the dose assessment calculations using SONGS dose assessment computer model (RADDOSE-V Version RD5v3.0i) for a fuel handling building accident with a Krypton-85 noble gas release, wind speed of 6.7 mph and stability class D (prevalent values for 2011 and 2012) indicates that a dose of 10 mrem for one hour of exposure at the EAB would require a noble gas release rate of 5.60E+08 microCuries per second (uCi/sec). The Plant Vent Stack Wide Range Gas Monitors 2RE7865 and 3RE7865 each have a readable range of 1.0E-04 to 1.0E+08 uCi/sec; therefore, a reading corresponding to 10 mrem at the EAB would be off-scale high. The upper limit (max readable value; indicator will go beyond value before reaching off scale-high) of the monitors range has been selected as the threshold to classify an Alert in accordance with EAL PD-AA1. This will correspond to 3.6 mrem for one hour of exposure, assuming a wind speed of 6.7 mph and stability class D. The developer notes in NEI 99-01, Revision 6, recognizes that the radiological condition described in the IC may result in a radiological effluent value beyond the operating or display range of the installed effluent monitor. In those cases, the EAL values should be determined with a margin sufficient to ensure that an accurate monitor reading is available. The NRC staff finds this site-specific change acceptable, as the instrumentation values are within the range of the instrumentation to allow for accurate and timely classification of the EAL, as described in the NRC-accepted developer notes in NEI 99-01, Revision 6.

For the site-specific changes to EAL 2, EAL 3 and EAL 4, the developer notes in NEI 99-01, Revision 6, identifies the "site-specific dose receptor point" as the distance(s) and/or locations used by the licensee to distinguish between onsite and offsite radiation doses. The selected distance and/or locations should reflect the content of the emergency plan, and the procedural methodology used to determine offsite doses and protective action recommendations. The accident analysis provided in the letter dated March 31, 2014 (Reference 16), provided that an offsite radiological release would not exceed the EPA's PAGs at the site's EAB for the DBAs applicable to the SONGS facility. Therefore, the site EAB is an acceptable site-specific substitute for the generic "site-specific dose receptor point."

Based on the NRC staff's review of this EAL, the NRC staff finds that the licensee-specific implementation method for this EAL includes the key characteristics of an effective EAL scheme. While there are site-specific differences as to what is provided in the generic EAL development guidance, this EAL continues to meet the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and therefore, is acceptable for implementation.

3.1.1.3 EAL PD-AU2, "UNPLANNED rise in plant radiation levels"

This EAL is based upon site-specific indications of increased plant radiation levels caused by a decrease in water level above irradiated (spent) fuel. The increased radiation levels are indicative of a minor loss in the ability to control radiation levels within the plant. This condition is a potential degradation in the level of safety of the plant.

The NRC staff verified that the SONGS implementation of this EAL, except for the site-specific changes identified below, is identical to the guidance provided in the permanently defueled station standard EAL scheme in NEI 99-01, Revision 6.

The licensee made the following site-specific changes to the generic EAL scheme by revising the EALs, as follows:

- EAL 1.a: Identified the spent fuel pool local level indicator as the site-specific indication.

- EAL1.b: Identified the unit-specific Fuel Handling Building Spent Fuel Cask Area radiation monitors 2RE7850 and 3RE7850, as the site-specific indication.

The site-specific changes to EAL 1.a and EAL 1.b, are in accordance with the guidance provided in the NEI 99-01, Revision 6, basis for this specific EAL. The developer notes in NEI 99-01, Revision 6, provides that the site-specific indications may include instrumentation values, such as, water level and area radiation monitoring readings, and personnel reports. These site-specific indications are installed plant equipment with indications in the command center that provide timely indication for classifying this EAL. Therefore, the spent fuel pool local level indicator and the unit-specific Fuel Handling Building Spent Fuel Cask Area radiation monitors 2RE7850 and 3RE7850 are acceptable site-specific indications of increased plant radiation levels caused by a decrease in water level above irradiated (spent) fuel.

Based on the NRC staff's review of this EAL, the NRC staff finds that the licensee-specific implementation method for this EAL includes the key characteristics of an effective EAL scheme. While there are site-specific differences as to what is provided in the generic EAL development guidance, this EAL continues to meet the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and therefore, is acceptable for implementation.

3.1.1.4 EAL PD-AA2, "UNPLANNED rise in plant radiation levels that impedes plant access required to maintain spent fuel integrity"

This EAL addresses increased radiation levels that impede necessary access to areas containing equipment that must be operated manually or that require local monitoring, in order to maintain systems needed to maintain spent fuel integrity. As used here, "impede" includes hindering or interfering, provided that the interference or delay is sufficient to significantly threaten necessary plant access. As such, it represents an actual or potential substantial degradation of the level of safety of the plant.

The Alert classification for this EAL is primarily intended to ensure that the Emergency Response Organization is activated to support the onshift personnel in removing the impediment to normal access to maintain spent fuel integrity.

The NRC staff verified that the SONGS implementation of this EAL, except for the site-specific changes identified below, is identical to the guidance provided in the permanently defueled station standard EAL scheme in NEI 99-01, Revision 6.

The licensee made the following site-specific changes to the generic EAL scheme by revising the EALs, as follows:

- EAL 1: Included a list of plant-specific areas.

- EAL 2: Substituted: "Survey results that indicate an UNPLANNED rise of 100 mr/hr over NORMAL LEVELS that impedes access to ANY of the following areas needed to maintain control of radioactive material or operation of systems needed to maintain spent fuel integrity"; for the endorsed guidance of "UNPLANNED Area Radiation Monitor readings or survey results indicate a rise by 100 mR/hr over NORMAL LEVELS that impedes access to ANY of the following areas needed to maintain control of radioactive material or operation of systems needed to maintain spent fuel integrity."

- EAL 2: Included a list of plant-specific areas.

For the site-specific changes to EAL 1, the developer notes in NEI 99-01, Revision 6, provides that the list should include all areas requiring continuous occupancy to maintain control of radioactive material or operation of systems needed to maintain spent fuel integrity. The list of areas that SONGS provided includes the following areas, requiring continuous occupancy to maintain control of radioactive material, or operation of systems needed to maintain spent fuel integrity:

- Command Center
- Central Alarm Station

The revisions to the wording of EAL 2 are administrative and do not affect the applicability of the EAL. The list of areas that SONGS provided includes the following areas needed to maintain control of radioactive material or operation of systems needed to maintain spent fuel integrity:

- Unit 2 63' Fuel Handling Building
- Unit 3 63' Fuel Handling Building

Based on the NRC staff's review of this EAL, the NRC staff finds that the licensee-specific implementation method for this EAL includes the key characteristics of an effective EAL scheme. While there are site-specific differences as to what is provided in the generic EAL development guidance, this EAL continues to meet the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and therefore, is acceptable for implementation.

3.1.2 CATEGORY 'PD-H' - HAZARDS

3.1.2.1 EAL PD-HU1, "Confirmed SECURITY CONDITION or threat"

This EAL is based upon any security-related event listed in the approved SONGS Security Plan that constitutes a threat/risk to site personnel, or a potential degradation to the level of safety of the plant.

The NRC staff verified that the SONGS implementation of this EAL, except for the site-specific changes identified below, is identical to the guidance provided in the permanently defueled station standard EAL scheme in NEI 99-01, Revision 6.

The licensee made the following site-specific changes to the generic EAL scheme by revising the EAL, as follows:

- EAL 1: Added the site-specific reference – "Security Shift Supervisor."

For the site-specific changes to EAL 1, the developer notes in NEI 99-01, Revision 6, provides that the "site specific security shift supervision" is the title of the onshift individual responsible for supervision of the onshift security force. For SONGS, the Security Shift Supervisor is the title of the onshift individual responsible for supervision of the onshift security force.

Based on the NRC staff's review of this EAL, the staff finds that the licensee-specific implementation method for this EAL set includes the key characteristics of an effective EAL scheme. While there are site-specific differences as to what is provided in the generic EAL development guidance, this EAL continues to meet the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and therefore, is acceptable for implementation.

3.1.2.2 EAL PD-HA1, "HOSTILE ACTION within the VEHICLE BARRIER SYSTEM or airborne attack threat within 30 minutes"

This EAL addresses the occurrence of a hostile action within the Vehicle Barrier System or notification of an aircraft attack threat. This event will require rapid response and assistance due to the possibility of the attack progressing to the protected area, or the need to prepare the plant and staff for a potential aircraft impact.

The NRC staff verified that the SONGS implementation of this EAL, except for the site-specific changes identified below, is identical to the guidance provided in the permanently defueled station standard EAL scheme in NEI 99-01, Revision 6.

The licensee made the following site-specific changes to the generic EAL scheme by revising the EAL, as follows:

- EAL 1: Added the site-specific reference – "Security Shift Supervisor."

For the site-specific changes to EAL 1, the developer notes in NEI 99-01, Revision 6, provides that the "site specific security shift supervision" is the title of the onshift individual responsible for supervision of the onshift security force. For SONGS, the Security Shift Supervisor is the title of the onshift individual responsible for supervision of the onshift security force.

Based on the NRC staff's review of this EAL, the NRC staff finds that the licensee-specific implementation method for this EAL set includes the key characteristics of an effective EAL scheme. While there are site-specific differences as to what is provided in the generic EAL development guidance, this EAL continues to meet the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and therefore, is acceptable for implementation.

3.1.2.3 EAL PD-HU2, "Hazardous event affecting SAFETY SYSTEM equipment necessary for spent fuel cooling"

This EAL is based upon the effect that natural and destructive hazards may have on at least one train of a safety system needed for spent fuel cooling. The damage must be of sufficient magnitude that the system(s) train cannot, or potentially cannot, perform its design function. This condition reduces the margin to a loss or potential loss of the fuel clad barrier, and therefore represents a potential degradation of the level of safety.

The NRC staff verified that the SONGS implementation of this EAL, except for the site-specific changes identified below, is identical to the guidance provided in the permanently defueled station standard EAL scheme in NEI 99-01, Revision 6.

The licensee made the following site-specific changes to the generic EAL scheme by revising the EAL, as follows:

- EAL 1: Deleted "site-specific hazards," as SCE did not identify any other significant site-specific hazards (e.g., a seiche).

For this site-specific change to EAL 1, the developer notes in NEI 99-01, Revision 6, provides that the EAL developers should consider other significant site-specific hazards (e.g., a seiche). The SONGS Preliminary Safely Analysis Report, dated May 28, 1970 (Reference 22), evaluated design criteria that included the consideration of the most severe natural phenomena that had been recorded for the site and the surrounding area. These site-specific natural phenomena included earthquakes and tsunamis. Earthquakes are listed as a specific hazardous event in the EAL. SCE did not include a "tsunami" as a site-specific hazard because it was already addressed with the "internal and external flooding event."

Based on the NRC staff's review of this EAL, the NRC staff finds that the licensee-specific implementation method for this EAL set includes the key characteristics of an effective EAL scheme. While there are site-specific differences as to what is provided in the generic EAL development guidance, this EAL continues to meet the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and therefore, is acceptable for implementation.

3.1.2.4 EAL PD-HU3, "Other conditions exist which in the judgment of the Emergency Director warrant declaration of a Notification of Unusual Event"

This EAL set is based upon providing the decision-maker with EALs to consider when its judgment deems an emergency classification is warranted.

The NRC staff verified that the SONGS implementation of this EAL is identical to the guidance provided in the permanently defueled station standard EAL scheme in NEI 99-01, Revision 6. As there are no site-specific differences as to what is provided in the generic EAL development guidance, this EAL continues to meet the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and therefore, is acceptable for implementation.

3.1.2.5 EAL PD-HA3, "Other conditions exist which in the judgment of the Emergency Director warrant declaration of an Alert"

This EAL is based upon providing the decision-maker with EALs to consider when its judgment deems an emergency classification is warranted.

The NRC staff verified that the SONGS implementation of this EAL is identical to the guidance provided in the permanently defueled station standard EAL scheme in NEI 99-01, Revision 6. As there are no site-specific differences as to what is provided in the generic EAL development guidance, this EAL continues to meet the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and therefore, is acceptable for implementation.

3.1.3 CATEGORY 'PD-S': SYSTEM MALFUNCTION

3.1.3.1 EAL PD-SU1, "UNPLANNED spent fuel pool temperature rise"

This EAL is based upon a loss of the ability to maintain spent fuel pool cooling. If uncorrected, boiling could occur, and result in a loss of water inventory and increased radiation levels.

The NRC staff verified that the SONGS implementation of this EAL, except for the site-specific changes identified below, is identical to the guidance provided in the permanently defueled station standard EAL scheme in NEI 99-01, Revision 6.

The licensee made the following site-specific changes to the generic EAL scheme by revising the EAL, as follows:

- EAL 1: Added the site-specific value of 140 degrees Fahrenheit (°F) as the minimum spent fuel pool temperature.

For the site-specific change to EAL 1, SCE provided that, per its procedure S023-13-23, "Loss of Spent Fuel Pool Cooling," a Spent Fuel Pool temperature of more than 140 °F is the point at which operators must take actions to restore cooling capabilities. The NRC staff finds that this site-specific change to EAL 1, to reference the site-specific value of 140 °F, is acceptable based on this analysis and the developer notes in NEI 99-01, Revision 6, which provides that the site-specific temperature should be chosen based on the starting point for fuel damage calculations. Typically, this temperature is 125 °F to 150 °F.

Based on the NRC staff's review of this EAL, the NRC staff finds that the licensee-specific implementation method for this EAL includes the key characteristics of an effective EAL scheme. While there are site-specific differences as to what is provided in the generic EAL development guidance, this EAL continues to meet the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and therefore, is acceptable for implementation.

3.1.4 CATEGORY 'E': INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI)

3.1.4.1 EAL E-HU1, "Damage to a loaded cask CONFINEMENT BOUNDARY"

This EAL addresses an event that results in damage to the CONFINEMENT BOUNDARY of a storage cask containing spent fuel. It applies to irradiated fuel that is licensed for dry storage beginning at the point that the loaded storage cask is sealed. The issues of concern are the creation of a potential or actual release path to the environment, degradation of one or more fuel assemblies due to environmental factors, and configuration changes that could cause challenges in removing the cask or fuel from storage.

The NRC staff verified that the SONGS implementation of this EAL, except for the site-specific changes identified below, is identical to the guidance provided in the permanently defueled station standard EAL scheme in NEI 99-01, Revision 6.

The licensee made the following site-specific changes to the generic EAL scheme by revising the EAL, as follows:

- EAL 1: Added site-specific dose rates of 520 mR/hr (gamma) 3 feet from the surface at the top centerline and 190 mR/hr (gamma) 3 feet from the surface of the neutron shield at the mid-height centerline.

For the site-specific changes to EAL 1, SCE provided the values that are two times the site-specific cask-specific technical specification allowable radiation level. The developer notes in NEI 99-01, Revision 6, provides that the allowable radiation level for a spent fuel cask is a radiation reading two times the cask's technical specification level located in the Certificate of Compliance. Therefore, the SONGSs site-specific change to this EAL is acceptable.

Based on the NRC staff's review of this EAL, the NRC staff finds that the licensee-specific implementation method for this EAL includes the key characteristics of an effective EAL scheme. While there are site-specific differences as to what is provided in the generic EAL development guidance, this EAL continues to meet the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and therefore, is acceptable for implementation.

3.2 Conclusion

The NRC staff has reviewed the technical basis for the proposed EAL scheme, the modifications from NEI 99-01, Revision 6, and the licensee's evaluation of the proposed changes. SCE chose, in part, to modify its EAL scheme from the generic EAL scheme development guidance provided in NEI 99-01, Revision 6, in order to adopt a format more in alignment with its currently approved EAL scheme, as well as in alignment with licensee-specific writer's guides and preferences. The staff determined that some of these modifications were administrative in nature, while others were the site-specific implementation of the guidance in NEI 99-01, Revision 6. These changes did not alter the intent of any specific EAL within an EAL set, EAL category, or within the entire EAL scheme, as stated in NEI 99-01, Revision 6.

Based on its review, the NRC staff determined that the proposed EAL scheme uses objective and observable values, is worded in a manner that addresses human engineering and user friendliness concerns, follows logical progression 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 emergency classification are in the same range of relative risk.

Based on the review of the proposed SCE EAL scheme, as described in Section 3.1 of this safety evaluation, the NRC staff finds that the proposed EAL scheme meets the guidance in NEI 99-01, Revision 6, the planning standards of 10 CFR 50.47(b)(4), the requirements in Appendix E to 10 CFR 50, as exempted, and provides reasonable assurance that the licensee can and will take adequate protective measures in the event of a radiological emergency at the facility. Therefore, the NRC staff concludes that the licensee's proposed SONGS EAL scheme, contained in Enclosure 2 of SCE's letter dated October 21, 2015 (Reference 6), is acceptable and consistent with the exemptions granted in the NRC letter dated June 4, 2015 (Reference 7).

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the California State official was notified of the proposed issuance of the amendments. The State official provided detailed comments in a letter dated May 14, 2015 (Reference 18). The following discussion addresses the State's comments, which are quoted from the body of the State's letter:

State Comment 1:

> The NRC staff asserts in its report dated December 17, 2014 [Reference 9] that the risk of an offsite radiological release is significantly lower and the types of possible accidents are significantly fewer, at a nuclear power reactor that has permanently ceased operations and removed fuel from the reactor vessel than at an operating power reactor. The report notes that on such basis the NRC has previously granted similar exemptions from EP requirements for permanently shut down and defueled power reactor licensees. But the NRC fails to consider circumstances unique to California's coastal nuclear facilities: risks to public health and safety associated with and exacerbated by the state's seismicity and risk of tsunami.

NRC Response 1:

The site characteristics regarding external hazards for the SONGS decommissioning facility are no different than those that existed when SONGS Units 2 and 3, were operating nuclear power reactors. The NRC regulations require that those structures, systems, and components that are important to safety must be designed to withstand the effects of natural phenomena such as earthquakes, tornadoes, hurricanes, floods, tsunamis, and seiches without loss of the capability to perform those safety functions necessary to cope with appropriate combinations of natural phenomena and plant conditions. As discussed in the SONGS Units 2 and 3, Updated Final Safety Analysis Report (UFSAR), the designs at SONGS are based upon the most severe of the natural phenomena recorded for the site and surrounding area, with an appropriate margin to

account for uncertainties in the historical data. In addition, the licensee has described the analyses performed for these hazards in the UFSAR. As such, the protection against site-specific hazards such as earthquakes and tsunamis remain in place for the structures, systems, and components that are important to safety in the decommissioning facility.

State Comment 2:

> The second amendment would revise the SONGS Emergency Action Level (EAL) scheme to reflect what SCE asserts is the permanently defueled condition of the station. This would effectively treat the radioactive material stored in a spent fuel pool as if it were a dry cask ISFSI and/or monitored retrievable storage ("MRS") facility.

NRC Response 2:

The NRC staff evaluated the different methods of storage of spent fuel and the effects of accidents for each method of storage in NUREG-1140, "A Regulatory Analysis on Emergency Preparedness for Fuel Cycle and Other Radioactive Material Licensees," dated January 1, 1988 (Reference 23). In NUREG-1140, the NRC staff concluded that the accident doses were below the EPA PAGs for taking protective actions after an accident for all methods of storage. Therefore, offsite emergency preparedness was determined to be unnecessary for spent fuel storage either in dry casks or in pools. More recent NRC studies, including NUREG/CR-6451, "A Safety and Regulatory Assessment of Generic BWR [Boiling Water Reactor] and PWR [Pressurized Water Reactor] Permanently Shutdown Nuclear Power Plants," dated August 31, 1997 (Reference 24), and NUREG-1738 "Technical Study of Spent Fuel Pool Accident Risk at Decommissioning Nuclear Power Plants," dated February 28, 2001 (Reference 25), have supported this conclusion.

The regulations in 10 CFR Part 72, "Licensing Requirements for the Independent Storage of Spent Nuclear Fuel and High-Level Radioactive Waste, and Reactor-Related Greater than Class C Waste," do not make a distinction between wet and dry modes of storage. Accordingly, the same emergency planning requirements apply without regard to the method of storage. For example, because the General Electric-Hitachi facility is licensed under Part 72, it must comply with the requirements for an ISFSI, even though it is a stand-alone SFP.

State Comment 3:

> Taken together, the license amendment requests would significantly reduce if not eliminate, notification procedures currently required by 10 CFR Part 50, Appendix E.

NRC Response 3:

Limiting the classification of emergency events up to and including an Alert declaration, and associated notification to State and local authorities, as proposed in the SONGS PDEP and EAL scheme, is consistent with the EP exemptions granted by the NRC in Reference 7, to reflect the risk commensurate with power reactors that have been permanently shut down. These exemptions are also consistent with those previously granted for decommissioning power reactors and approved by the Commission in its SRM to SECY-14-0144.

State Comment 4:

> For instance, the exemptions request proposes that the procedures requiring notification and interaction with State and local agencies as set forth in Part 50, Appendix E be eliminated almost in their entirety, based on the erroneous assumption that SONGS - in its present state with spent fuel in the cooling pool - be viewed as an ISFSI and/or MRS facility.

NRC Response 4:

Limiting the classification of emergency events up to and including an Alert declaration, and associated notifications to and interactions with State and local authorities, as proposed in the SONGS PDEP and EAL scheme is consistent with the EP exemptions granted by the NRC in Reference 7, to reflect the risk commensurate with power reactors that have been permanently shut down. These exemptions are also consistent with those previously granted for decommissioning power reactors and approved by the Commission in its SRM to SECY-14-0144, which align EP requirements consistent with 10 CFR 72.32 for ISFSIs/MRS facilities. The licensee will still be required to maintain an onsite emergency plan addressing the notification of designated offsite government officials following an event declaration, and coordinate the response of offsite response organizations (i.e., firefighting, medical assistance) onsite in support of an event.

State Comment 5:

> [...] the license amendment request fails to adequately analyze a number of credible scenarios whereby public health and safety may be put at risk, including from a seismic event or tsunami, and from the spent fuel rods maintained in the spent fuel cooling pool.

NRC Response 5:

An evaluation of accident scenarios was performed under NRC's granting of EP exemption in Reference 7, which is consistent with the accident analyses described in SECY-14-0144. The license amendment requests are not intended to re-evaluate aspects of the EP exemptions already granted by the NRC, but to support implementation of approved exemptions.

As described in SECY-14-0144, in evaluating EP exemption requests, the NRC staff requires that a licensee provide site-specific SFP analyses demonstrating that: (1) remaining applicable DBAs would no longer result in projected dose to the public exceeding U.S. EPA PAGs at the EAB; and (2) spent fuel is no longer susceptible to a zirconium fire or sufficient time would be available to take mitigation measures, and if needed, to implement offsite protective measures following an SFP accident resulting in a loss of SFP water inventory, from a beyond-design-basis event. This would include defined SFP mitigation strategies and the availability of "on-shift" staffing and equipment to promptly initiate the response. Item (2) stated above, conservatively assumes that a beyond-DBA (such as a severe earthquake) has occurred resulting in a loss of SFP water inventory and a worst case (adiabatic) heatup of spent fuel where both water and air cooling are lost.

State Comment 6:

> The license amendment request, if granted, would eliminate the federal requirement that SCE take responsibility for planning a response to a spent fuel pool emergency that may last more than 10 hours. This problem would be compounded by the lack of clear notification procedures to the State otherwise required by Part 50, Appendix E.

NRC Response 6:

The 10-hour period is a conservative minimum time that a licensee must demonstrate is available to implement initial mitigation actions or initiate protective measures, if needed, following the loss of SFP water inventory and uncovery of fuel in the SFP. This does not imply that SCE's responsibility for planning a response to an SFP emergency only applies to the first 10 hours after the loss of SFP water inventory and uncovery of fuel in the SFP, but rather requires that designated mitigative strategies be identified and be capable of prompt implementation by qualified on-shift staffing prior to augmentation. The time available for these actions would likely be much longer than 10 hours because the analysis does not evaluate the time necessary for the large coolant inventory to be lost and the effect of further decay and natural cooling in extending the necessary heatup time.

The SONGS Emergency Response Organization (ERO) is activated when an Alert is declared at the direction of the Shift Manager, who assumes the responsibilities of the Emergency Director, to augment the on-shift staff. The minimum augmented staff, having a 2-hour response time from the declaration of an Alert, is a Duty ERO Coordinator and a Radiation Protection Coordinator. Additional ERO staffing, consisting of a Technical Coordinator, Radiation Protection Technicians, and other emergency response personnel, may also be activated as needed at the discretion of the Emergency Director and/or the Duty ERO Coordinator. The ERO, upon arrival, will support on-shift staff in the assessment of the event and development and implementation of longer term mitigative strategies, if required.

The licensee will still be required to maintain an onsite emergency plan addressing the notification of designated offsite government officials following an event declaration, and coordinate the response of offsite response organizations (i.e., firefighting, medical assistance) onsite in support of an event.

State Comment 7:

> [...] while spent fuel remains stored on-site in wet-cooling pools, the license amendment requests would likely result in a clear reduction in emergency plan effectiveness that cannot meet the requirements of 10 CFR § 50.54(q)(4) and companion Part 50, Appendix E emergency plan requirements.

NRC Response 7:

The exemptions requested by SCE, and granted by the NRC in Reference 7, are consistent with those previously granted for decommissioning power reactors and approved by the Commission

in its SRM to SECY-14-0144. The license amendments for the proposed SONGS PDEP and EAL scheme are intended to implement the EP exemptions already granted by the NRC, to reflect the risk commensurate with power reactors that have been permanently shut down.

5.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding which was published in the *Federal Register* on December 23, 2014 (79 FR 77048). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the 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 amendment will not be inimical to the common defense and security or to the health and safety of the public.

7.0 REFERENCES

1. Dietrich, P., Southern California Edison, letter to U.S. Nuclear Regulatory Commission, "Docket Nos. 50-361 and 50-362, Certification of Permanent Cessation of Power Operations San Onofre Nuclear Generating Station Units 2 and 3," dated June 12, 2013 (ADAMS Accession No. ML131640201).

2. Dietrich, P., Southern California Edison, letter to U.S. Nuclear Regulatory Commission, "Docket No. 50-362, Permanent Removal of Fuel from the Reactor Vessel San Onofre Nuclear Generating Station Unit 3," dated June 28, 2013 (ADAMS Accession No. ML13183A391).

3. Dietrich, P., Southern California Edison, letter to U.S. Nuclear Regulatory Commission, "Docket No. 50-361 – Permanent Removal of Fuel from the Reactor Vessel San Onofre Nuclear Generating Station Unit 2," dated July 22, 2013 (ADAMS Accession No. ML13204A304).

4. Palmisano, T. J., Southern California Edison, letter to U.S. Nuclear Regulatory Commission, "Docket Nos. 50-206, 50-361, 50-362 and 72-041, Amendment Application Numbers, 224, 268, and 253, Permanently Defueled Emergency Action Level Scheme, San Onofre Nuclear Generating Station, Units 1, 2, and 3, respectively, and Independent Spent Fuel Storage Installation," dated March 31, 2014 (ADAMS Accession No. ML14092A249).

5. Wengert, T. J., U.S. Nuclear Regulatory Commission letter to Mr. Thomas J. Palmisano, Southern California Edison Company, "San Onofre Nuclear Generating Station, Units 1, 2, and 3, and Independent Spent Fuel Storage Installation – Request For Additional Information Re: License Amendment Request For Emergency Action Level Scheme Change (TAC Nos. MF3838, MF3839, and MF3840)," dated September 18, 2014 (ADAMS Accession No. ML14248A560).

6. Palmisano, T. J., Southern California Edison letter to U.S. Nuclear Regulatory Commission, "Docket No. 50-206, 50-361, 50-362, and 72-041 Response to Request for Additional Information and Supplement Regarding Permanently Defueled Emergency Action Levels Amendment Application Numbers 224, 268, and 253 San Onofre Nuclear Generating Station, Units 1, 2, and 3 and ISFSI," dated October 21, 2014 (ADAMS Accession No. ML14297A016).

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14. Leeds, E. J., U.S. Nuclear Regulatory Commission, letter to Ross Ridenoure, "San Onofre Nuclear Generating Station, Units 1, 2, and 3 – Change to Emergency Action Level Scheme (TAC Nos. ME1014, ME1015, and ME1016)," dated March 22, 2010 (ADAMS Accession No. ML100620983).

15. Brabec, R. C., Southern California Edison letter to U.S. Nuclear Regulatory Commission, "Docket No. 50-206, 50-361, 50-362, and 72-041 Permanently Defueled Emergency Plan and Permanently Defueled Emergency Action Levels San Onofre Nuclear Generating Station, Units 1, 2, and 3 and ISFSI," dated April 29, 2015 (ADAMS Accession No. ML15121A721).

16. Palmisano, T. J., Southern California Edison, letter to U.S. Nuclear Regulatory Commission, "Docket Nos. 50-206, 50-361, 50-362 and 72-041, Amendment Application Numbers, 223, 267, and 252, Permanently Defueled Emergency Plan, San Onofre Nuclear Generating Station, Units 1, 2, and 3, respectively, and Independent Spent Fuel Storage Installation," dated March 31, 2014 (ADAMS Accession No. ML14092A314).

17. Wengert, T. J., U.S. Nuclear Regulatory Commission letter to Mr. Thomas J. Palmisano, Southern California Edison Company, "San Onofre Nuclear Generating Station, Units 1, 2, and 3, and Independent Spent Fuel Storage Installation – Issuance of Amendments RE: Changes to the Emergency Plan (TAC Nos. MF3841, MF3842, and MF3843)," dated June 5, 2015 (ADAMS Accession No. ML15126A461).

18. Weisenmiller, R., State of California – Natural Resources Agency, California Energy Commission, letter to Annette Vietti-Cook, U.S. Nuclear Regulatory Commission, "San Onofre Nuclear Generating Station (SONGS) – License Amendments Regarding the Revision to Emergency Plan and Emergency Action Levels (TAC Nos. MF3838 through MF3843)," dated May 14, 2015 (ADAMS Accession No. ML15135A304).

19. Palmisano, T. J., Southern California Edison, letter to U.S. Nuclear Regulatory Commission, "Docket No. 50-206, 50-361 and 50-362; and 72-041 Redacted Version of Response to Request for Additional Information Proposed Exemptions from Certain Portions of 10 CFR 50.47 and Appendix E," dated December 15, 2014 (ADAMS Accession No. ML14351A078).

20. Sterdis, Andrea, Southern California Edison, e-mail to Thomas Wengert, U.S. Nuclear Regulatory Commission, "IPC Chairman Kirchner's Write-up," dated October 22, 2014 (ADAMS Accession No. ML14297A489).

21. U.S. Nuclear Regulatory Commission, Generic Letter 1989-01, "Implementation of Programmatic and Procedural Controls for Radiological Effluent Technical Specifications in the Administrative Controls Section of the Technical Specifications and the Relocation of Procedural Details of RETS [Radiological Effluent Technical Specifications] to the Offsite Dose Calculation Manual or to the Process Control Program," dated January 31, 1989 (ADAMS Accession No. ML031140051).

22. Southern California Edison Company, "San Onofre, Units 2 and 3 - Preliminary Safety Analysis Report, Volume I," dated May 28, 1970 (ADAMS Accession No. ML14092A069). (Not publicly available.)

23. U.S. Nuclear Regulatory Commission NUREG-1140, "A Regulatory Analysis on Emergency Preparedness for Fuel Cycle and Other Radioactive Material Licensees, Final Report," dated January 1, 1988 (ADAMS Accession No. ML062020791).

24. NUREG/CR-6451, "A Safety and Regulatory Assessment of Generic BWR and PWR Permanently Shutdown Nuclear Power Plants," dated August 31, 1997 (ADAMS Accession No. ML082260098).

25. U.S. Nuclear Regulatory Commission, NUREG-1738, "Technical Study of Spent Fuel Pool Accident Risk at Decommissioning Nuclear Power Plants," dated February 28, 2001 (ADAMS Accession No. ML010430066).

Principal Contributors: Michael Norris, NSIR
Richard Kinard, NSIR

Date: June 5, 2015

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

Due to the impact these amendments have on various stakeholders, the NRC staff requests that SCE maintain open communications with the NRC's SONGS licensing project manager about the status of the completion of the implementation of these amendments.

Sincerely,

/RA/

Thomas J. Wengert, Senior Project Manager
Plant Licensing IV-2 and Decommissioning
Transition Branch
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-206, 50-361,
50-362, and 72-041

Enclosures:
1. Amendment No. 166 to DPR-13
2. Amendment No. 228 to NPF-10
3. Amendment No. 221 to NPF-15
4. Safety Evaluation

cc: Listserv

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ADAMS Accession No. ML15105A349 *e-mail dated **see previous

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