

March 31, 2014

10 CFR 50.54(q)
10 CFR 50.90
10 CFR 50, Appendix E

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington D.C. 20555-0001

Subject: **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**

- References:
1. SCE to NRC letter dated March 31, 2014, Docket Nos. 50-206, 50-361, 50-362, and 72-041, Emergency Planning Exemption Request, San Onofre Nuclear Generating Station, Units 1, 2, 3, and Independent Spent Fuel Storage Installation
 2. SCE to NRC letter dated June 12, 2013, Docket Nos. 50-361 and 50-362, *Certification of Permanent Cessation of Power Operations*, San Onofre Nuclear Generating Station, Units 2 and 3
 3. SCE to NRC letter dated June 28, 2013, Permanent Removal of Fuel from the Reactor Vessel, San Onofre Nuclear Generating Station Unit 3
 4. SCE to NRC letter dated July 22, 2013, Permanent Removal of Fuel from the Reactor Vessel, San Onofre Nuclear Generating Station Unit 2
 5. Inspection Report, dated March 26, 2014; Subject: San Onofre Nuclear Generating Station - NRC Baseline Inspection Report (05000361/2013501) and (05000362/2013501); ADAMS Accession #ML14085A502.

Dear Sir or Madam:

Pursuant to 10CFR 50.54(q) and 10 CFR 50.90, Southern California Edison (SCE) hereby submits enclosed License Amendment Requests (LARs) 223, 267, and 252, for San Onofre Nuclear Generating Station (SONGS) Units 1, 2, and 3, respectively, and the Independent Spent Fuel Storage Facility. These License Amendment Requests consist of Proposed Change Number (PCN)-606.

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PCN-606 proposes a SONGS Permanently Defueled Emergency Plan (PDEP) which completely replaces the existing Emergency Plan, and which reflects the permanently defueled condition of SONGS. PCN-606 proposes changes that necessitate exemptions for planning requirements in 10 CFR 50.47(b), 10 CFR 50.47(c)(2) and 10 CFR Part 50, Appendix E, which are requested under separate cover letter (Reference 1). Additional changes (not requiring an exemption) are also proposed. These changes are identified in Section 2.0 of Enclosure 1.

In References 2, 3, and 4, SCE provided certification of SONGS Units 2 and 3 permanent cessation of power operation and permanent removal of fuel from the reactor vessels. Accordingly, pursuant to 10 CFR 50.82(a)(2), 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 in the reactor vessel. SONGS Units 2 and 3 pose significantly less risk to the public health and safety in this condition. The proposed PDEP adequately addresses the risk associated with SONGS Units 2 and 3 in the permanently defueled condition and continues to provide adequate protection for plant personnel and the public.

Enclosure 1 contains the evaluation of PCN 606. Enclosure 2 contains a copy of the proposed SONGS Permanently Defueled Emergency Plan. Enclosure 3 contains an index of the plan elements of the NRC's Interim Staff Guidance on Defueled Emergency Plan content to the relevant discussion in the SONGS proposed Defueled Emergency Plan.

On March 26, 2014, the NRC issued an inspection report (Reference 5) which identified a Non-Cited Violation. The violation was issued for failure to obtain prior NRC approval before implementing changes to Emergency Response Organization (ERO) staffing. As stated in Reference 5, SCE can restore compliance by expediting submission of license amendment requests requesting NRC approval to delete the identified positions from the ERO. The ERO staffing changes identified in Reference 5 are also reflected in the proposed PDEP, and SCE therefore considers this submittal as sufficient to restore compliance.

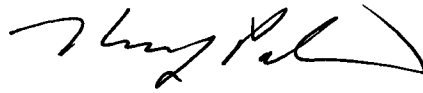
SCE requests approval of these proposed changes by December 31, 2014.

There are no new regulatory commitments made within this submittal.

If there are any questions or if additional information is needed, please contact Mark E. Morgan at (949) 368-6745.

I declare under penalty of perjury that the foregoing is true and correct. Executed on
3/31, 2014

Sincerely,



Enclosures:

1. Evaluation of proposed License Amendment Request, Permanently Defueled Emergency Plan.
2. San Onofre Nuclear generating Station (SONGS) Permanently Defueled Emergency Plan
3. SONGS PDEP Review against NSIR/DPR-ISG-02

cc:

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ENCLOSURE 1

**EVALUATION OF PROPOSED LICENSE AMENDMENT
REQUEST
PERMANENTLY DEFUELED EMERGENCY PLAN**

1.0 SUMMARY DESCRIPTION

Proposed Change Number 606 (PCN-606) is a request for approval of the SONGS Permanently Defueled Emergency Plan (PDEP). The PDEP reflects the permanently defueled condition of San Onofre Nuclear Generating Station (SONGS). The proposed changes discontinue offsite emergency planning activities and reduce the scope of onsite emergency planning as a result of the substantially lower onsite and offsite radiological consequences of accidents possible at SONGS.

PCN-606 implements changes that necessitate exemptions for planning requirements in 10 CFR 50.47(b), 10 CFR 50.47(c)(2) and 10 CFR Part 50, Appendix E, which are requested under separate cover letter (Reference 5.1).

2.0 DETAILED DESCRIPTION

SONGS Unit 1 was permanently shut down in 1993 and is in the decommissioning phase. Above-ground structures have been dismantled. Unit 1 fuel is stored in the Independent Spent Fuel Storage Installation and in the GE-Hitachi Morris facility.

By letter dated June 12, 2013 (Reference 5.2), Southern California Edison (SCE) submitted a certification to the NRC indicating its intention to permanently cease power operations at SONGS Units 2 and 3, pursuant to 10 CFR 50.82(a)(1)(i). On June 28, 2013, SCE submitted a certification of permanent removal of fuel from the reactor vessel for SONGS Unit 3 (Reference 5.3) pursuant to 10 CFR 50.82(a)(1)(ii). On July 22, 2013, SCE submitted a certification of permanent removal of fuel from the reactor vessel for SONGS Unit 2 (Reference 5.4) 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 reactor or emplacement or retention of fuel into the reactor vessel, as specified in 10 CFR 50.82(a)(2).

SONGS Units 2 and 3 have been shut down since January 2012. At the time of this submittal, it has been more than two years since the most recent irradiation of spent fuel that is stored in the Units 2 and 3 spent fuel pools. It is estimated that SONGS Units 2 and 3 will remain in a wet fuel storage configuration for approximately five years. SONGS poses significantly less risk to the public health and safety in this condition. The proposed PDEP discontinues offsite emergency planning activities and reduces the scope of onsite emergency planning, based upon the substantially lower radiological consequences from accidents. Because of these proposed changes, the PDEP will not meet all standards of 10 CFR 50.47, "Emergency plans," and 10 CFR Part 50, Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities." SCE has, in accordance with 10 CFR 50.12, requested specific exemption (Reference

1) from certain requirements of 10 CFR 50.47(b), 10 CFR 50.47(c)(2), and 10 CFR Part 50, Appendix E, in support of NRC review and approval of and SCE implementation of, the SONGS PDEP.

Additional changes to the emergency plan that are beyond the scope of the Reference 1 proposed exemption include:

- Consolidation of onsite functions to a Command Center
- Changes to on-shift and augmented staffing
- Offsite fire, medical, rescue, and law enforcement support
- Mitigation strategies and equipment procedure
- Emergency exposure guidelines
- Offsite medical facilities
- Annual offsite responders training.

Enclosure 3 of this submittal provides a comparison of the content of the proposed plan to the guidance provided in NSIR/DPR-ISG-02.

3.0 DESIGN BASIS ACCIDENT ANALYSIS

SONGS Units 2 and 3 have permanently ceased operation and removed all nuclear fuel from their reactor vessels. The irradiated fuel will be stored in the spent fuel pool (SFP) and in the Independent Spent Fuel Storage Installation (ISFSI) until it is shipped offsite. In this condition, the number of credible accidents/transients is significantly smaller than for a plant authorized to operate the reactor or emplace or retain fuel in the reactor vessel.

With irradiated fuel being stored in the SFP and the ISFSI, the reactor, Reactor Coolant System (RCS) and secondary system are no longer in operation and have no function related to storage of irradiated fuel. With the permanent cessation of power operation and the permanent removal of the fuel from the reactor core, the accident/transient initial conditions/initial reactor power level of the reactor core cannot be achieved and, as such, most of the accident/transient scenarios are not possible. Therefore, the postulated Updated Final Safety Analysis Report (UFSAR) Chapter 15 accidents/transients involving failure or malfunction of the reactor, RCS or secondary system are no longer applicable. The UFSAR has been updated accordingly in accordance with 10 CFR 50.71(e).

The remaining UFSAR Chapter 15 design basis accident scenarios that apply to a permanently defueled facility that have the potential to result in a radiological release are a Fuel Handling Accident (FHA) in the Fuel Handling Building (FHB), a spent fuel

cask drop accident, a spent fuel pool boiling accident, a liquid Radioactive Waste System leak or failure, a radioactive release due to liquid tank failures, and an accidental release of waste gas. Since the waste gas decay tanks have been purged of their contents, a rupture of these components will no longer be an applicable initiator or source of such an accident. With regard to the postulated radioactive release due to liquid tank failures, UFSAR Section 15.7.3.3.5 states no credible accident exists that would result in liquid releases exceeding 10 CFR 20 limits.

Previous generic and plant-specific analyses of radwaste handling accidents at decommissioning plants show the consequences to be within 10 CFR 20 limits. SCE intends to develop a plant-specific radwaste handling analysis for inclusion in the UFSAR.

As described below, the remaining accident analyses for SONGS, calculated as of August, 2013, show that the dose consequences are within the relevant regulatory limits.

Dose consequences to a member of the public are calculated at the Exclusion Area Boundary (EAB). The EAB for SONGS is roughly formed by two semi-circles with radii of 1967.5 feet each, centered on the Unit 2 containment and a point 134 feet southeast of the Unit 3 containment, with a tangent connecting the landward arcs and the seaward arcs of the two semi-circles.

3.1 Radioactive Waste System Leak or Failure (Release to Atmosphere)

UFSAR Section 15.7.3.2 discusses the radiological consequences for a liquid Radioactive Waste System leak or failure. Liquid releases considered include rupture of radwaste tanks, refueling water storage tanks, primary ion-exchangers, and the blowdown demineralizer neutralization sump line. The most limiting of these is defined as an unexpected and uncontrolled release of the radioactive liquid stored in a radwaste secondary tank. The radwaste secondary tanks are Seismic Category II, Quality Class III tanks at atmospheric pressure. Rupture of these tanks is considered a limiting fault. A radwaste secondary tank rupture would release the liquid contents in the auxiliary building (radwaste area). All of the radioactive fission gases and iodines are assumed to be released to the outside atmosphere in 2 hours. As shown in Table 1, below, offsite doses due to the rupture of a radwaste secondary tank are less than the 100 mRem TEDE offsite dose criterion per Regulatory Issue Summary 2006-04 and less than the 1 rem criterion in the Environmental Protection Agency (EPA) Protective Action Guides (PAGs).

DOSE RECEPTOR	DOSE (mRem TEDE)	ACCEPTANCE CRITERION (mRem TEDE)
EAB (Maximum 2-hour dose -- 0.0 to 2.0 hours)	7.1	100
LPZ (30-day accident duration)	1.4	100

Table 1 – Radiological Exposures as a Result of Liquid Tank Rupture
(Release to Atmosphere)

3.2 Spent Fuel Cask Drop Accident

UFSAR Section 15.7.3.5 analyzes spent fuel cask drop events. Of the three situations considered, a spent fuel transfer cask drop (due to a seismic event) from the upper shelf in the cask pool back into the lower portion of the cask pool is the only credible event with the potential for radiological release. Even though single-failure-proof cranes are used to lift a spent fuel transfer cask out of a cask pool, a drop can be postulated when the cask is placed on the upper shelf (i.e., step) of a cask pool for lifting yoke change-out, prior to the transfer cask being welded closed. During this evolution, the transfer cask is not restrained and could fall back into the lower portion of the cask pool if an earthquake occurs.

It is assumed that a minimum of 17 months have elapsed since permanent discharge from the core for Unit 2 or 3 fuel assemblies that are loaded into a transfer cask. The fuel rods from all 32 fuel assemblies that may be present in a transfer cask are conservatively assumed to rupture on impact with the bottom of the cask pool. All of the radioactive iodine and noble gases present in the gap volumes of the decayed fuel rods are assumed to be released from the unwelded transfer cask.

No engineered safety feature (ESF) system is used to mitigate the Control Room, Exclusion Area Boundary (EAB) or Low Population Zone (LPZ) dose consequences of the cask drop accident event. This includes no credit for the Fuel Handling Isolation Signal (FHIS), the fuel handling building post-accident cleanup unit (PACU) filtration system, the Control Room Isolation Signal (CRIS) and the control room (CR) emergency air cleanup system (CREACUS). Doses are evaluated for various control room unfiltered intake plus unfiltered inleakage inflow rates.

The release of radioactive material to the atmosphere represents a potential exposure hazard to control room personnel and the general public at the EAB and LPZ. However, as shown in Table 2, below, the control room doses and offsite radiological doses for the postulated spent fuel cask drop accident do not exceed 25% of the 10 CFR Part 50.67 exposure guidelines and are less than the 1 rem criterion in the EPA PAGs.

DOSE RECEPTOR	CASK DROP DOSE (REM TEDE)	ACCEPTANCE CRITERION (REM TEDE)
Control Room (30-day accident duration)	0.89E-3 (0.89 mRem TEDE)	5
EAB (Maximum 2-hour dose -- 0.0 to 2.0 hours)	3.09E-3 (3.09 mRem TEDE)	6.3
LPZ (30-day accident duration)	0.09E-3 (0.09 mRem TEDE)	6.3

Table 2 – Cask Drop Accident Dose Consequences

3.3 Spent Fuel Pool Boiling Accident

UFSAR Section 15.7.3.8 analyzes the spent fuel pool boiling accident. The postulated loss of all spent fuel pool (SFP) cooling is assumed to result in SFP boiling and the release of a portion of the radionuclide inventory contained in the stored spent fuel assemblies and the SFP water. The following evaluation of the radiological consequences for the SFP boiling event assumes a minimum of 17 months since the shutdown of Units 2 and 3.

Following a loss of SFP cooling, activity releases from the spent fuel due to evaporation and boiling disperse to the Control Room, EAB and LPZ locations. No credit is taken for activity retention within the fuel handling building air. No credit is taken for FHIS or filtration by the Fuel Handling Building PACUs. All activity escaping from the SFP is assumed to be instantaneously released to the environment and atmospherically dispersed to the control room and offsite dose receptors.

No credit is taken for CRIS or CREACUS. For conservatism the control room dose is calculated for an individual at the control room outside air intake location. The total effective dose equivalent (TEDE) dose at this location is conservatively greater than it would be inside the Control Room. The activity concentration inside the control room would be smaller since only a portion of the outside cloud would enter the control room envelope via ventilation system inflow or leakage. As shown in Table 3, below, the offsite radiological doses for the postulated SFP boiling accident do not exceed 25% of the 10 CFR Part 50.67 exposure guidelines and less than the 1 rem criterion in the EPA PAGs.

DOSE RECEPTOR	SFP BOILING DOSE (REM TEDE)	ACCEPTANCE CRITERION (REM TEDE)
Control Room (30-day accident duration)	11.96E-3 (11.96 mRem TEDE)	5
EAB (Maximum 2-hour dose -- 0.0 to 2.0 hours)	0.08E-3 (0.08 mRem TEDE)	6.3
LPZ (30-day accident duration)	0.25E-3 (0.25 mRem TEDE)	6.3

Table 3 – Radiological Consequences of Spent Fuel Pool Boiling

3.4 Fuel Handling Accident Analysis for the Permanently Defueled Condition

A revision to the FHA analysis was incorporated into SONGS UFSAR Section 15.7.3.4 under the provisions of 10 CFR 50.59 to address the permanently defueled condition. The analysis determined a reasonable time post-cessation of operations for movement of fuel from the fuel storage pool during which, if a fuel handling accident occurs, dose consequences would be within 10 CFR 50.67 and Regulatory Guide 1.183 dose limits. The analysis assumed fuel storage pool decontamination based on 23 feet of water over the failed fuel assembly, no credit for emergency ventilation or filtration (control room or otherwise) and no credit taken for radioactive decay of the isotopes during atmospheric dispersion transit to the control room or offsite dose locations.

The FHA inside the FHB involves the inadvertent dropping of a fuel assembly during fuel handling operations, and the subsequent rupture of fuel pins in the dropped assembly, and/or the impacted assembly. A maximum of 472 fuel rods are assumed to fail as a result of the drop of a fuel assembly on to the fuel assemblies stored in fuel storage pool fuel racks. The FHA-FHB dose analysis models 17 months (12,240 hours) of radioactive decay prior to the event. All gap activity in the damaged rods is assumed to be instantaneously released into the fuel storage pool. During the movement of fuel assemblies in the fuel storage pool, the fuel storage pool water level is assumed to be at least 23 feet over the top of the irradiated fuel assemblies seated in the storage racks.

The radioactive material that escapes from the fuel storage pool to the FHB is assumed to be released to the environment over a 2-hour time period (i.e., FHB closure is not modeled during the FHA-FHB event). Consistent with the 2-hour release model assumption, the FHA-FHB alternate source term (AST) dose analysis does not model the generation of an Engineered Safety Feature Actuation System (ESFAS) fuel

handling [building] isolation signal (FHIS). The FHB normal ventilation exhaust is assumed to remain operational throughout the FHA-FHB event. The FHB air volume dilutes the gaseous activity released from the damaged fuel rods.

The FHA-FHB AST dose analysis does not model a reduction in the amount of radioactive material available for release from the FHB by the fuel handling building Post-Accident Cleanup Unit filter system.

Activity released during the FHA-FHB event is transported by atmospheric dispersion to the control room HVAC intake and to the offsite EAB and LPZ dose receptors. Activity may be released to the environment via the FHB normal ventilation exhaust system through the main plant vent, or as leakage through FHB penetrations (e.g., doors). No credit is taken for radioactive decay of the isotopes during atmospheric dispersion transit to the control room or offsite dose locations. Table 4 presents the San Onofre site-specific 95th percentile meteorology atmospheric dispersion factors for these release pathways for control room dose calculation.

FHA-FHB to CR 95th Percentile Atmospheric Dispersion Factors (seconds/m ³)			
Time Interval	FHB Release Point	Main Plant Vent Release Point	Modeled Value
0 to 2 hours	9.48E-04	1.15E-03	1.15E-03
2 to 8 hours	7.61E-04	6.23E-04	7.61E-04
8 to 24 hours	1.92E-04	2.14E-04	2.14E-04
1 to 4 days	2.65E-04	2.22E-04	2.65E-04
4 to 30 days	2.43E-04	2.02E-04	2.43E-04

Table 4 – FHA-FHB Control Room Atmospheric Dispersion Factors

The FHA-FHB dose analysis for persons located at or beyond the boundary of the exclusion area, including the outer boundary of the low population zone, considers the dose consequences of inhalation and immersion. Radioactive material in the fuel handling building is assumed to be a negligible radiation shine source to the offsite dose receptors relative to the dose associated with immersion in the radioactive plume released from the facility.

The Control Room (CR) dose during a design basis FHA-FHB following permanent shut down of SONGS Units 2 and 3 is based on:

- (a) No credit for control room emergency air cleanup system (CREACUS) and Control Room Isolation Signal (CRIS) and no gamma radiation shine from CREACUS charcoal and HEPA filters.
- (b) CR doses are evaluated at various CR unfiltered inflow (including inleakage) flow rates. The flow rates were varied from 500 cfm to 15,000 cfm, but only the bounding CR dose is reported.

FHA-FHB dose analysis for persons located in the control room considers the dose consequences of inhalation, immersion, and radiation shine from the environmental (or outside) cloud. Radiation shine from contaminated air in the fuel handling building is considered negligible due to the presence of numerous intervening concrete walls and the geometric attenuation due to the distance between the FHB and the control room.

The resulting FHA-FHB offsite and control room operator doses are listed in Table 5. The analysis demonstrates that the FHA-FHB event criteria are met and that the doses are less than the 1 rem criterion in the EPA PAGs.

DOSE RECEPTOR	FHA-FHB DOSE (REM TEDE)	ACCEPTANCE CRITERION (REM TEDE)
Control Room (30-day accident duration)	0.06E-3 (0.06 mRem TEDE)	5
EAB (Maximum 2-hour dose -- 0.0 to 2.0 hours)	0.20E-3 (0.20 mRem TEDE)	6.3
LPZ (30-day accident duration)	0.01E-3 (0.01 mRem TEDE)	6.3

Table 5 – FHA-FHB Dose Consequences

4.0 BEYOND-DESIGN-BASIS ACCIDENT ANALYSIS

The following analyses of beyond design basis scenarios demonstrate that the changes will be acceptable even with a completely drained spent fuel pool:

Hottest Fuel Assembly Adiabatic Heatup

Loss of Pool Water Inventory Dose

Dose results are compared to the Environmental Protection Agency (EPA) Protective Action Guides (PAGs) to support the exemption from requirements for offsite planning zones. Fuel clad temperature rise results are compared to the current draft of Interim

Staff Guidance NSIR/DPR-ISG-02, "Emergency Planning Exemption Requests for Decommissioning Nuclear Power Plants."

The results of the two beyond design basis calculations are described in the next two sections.

4.1 HOTTEST FUEL ASSEMBLY ADIABATIC HEATUP

4.1.1 General Description

This analysis is provided to evaluate the conditions for the hottest fuel assembly stored in the SONGS fuel pools. The results are compared to criteria applicable to offsite emergency response for the unit in the decommissioning process proposed in SECY-99-168, "Improving Decommissioning Regulations for Nuclear Power Plants," NUREG/CR-6451, "A Safety and Regulatory Assessment of Generic BWR and PWR Permanently Shutdown Nuclear Power Plants," and NUREG-1738, "Technical Study of Spent Fuel Pool Accident Risk at Decommissioning Nuclear Power Plants." The criteria consider the time for the hottest assembly to heat up adiabatically to critical or failure temperatures for the zirconium cladding. SECY-99-168 performed an evaluation of the heat up time from 30°C to 900°C. NUREG/CR-6451 states that 565°C is the lowest temperature where incipient cladding failure may occur. According to NUREG-1738 the oxidation heat source becomes a significant heat source at temperatures above 600°C and 900°C is the limit for incipient temperature escalation. 900°C is appropriate for determining the 10 hour heat-up time. As indicated in SECY-99-168, a heat up time of 10 hours is sufficient time to take mitigating action. This is a beyond design basis event and is bounding for any other loss of inventory event.

The NRC recently published for comment Interim Staff Guidance NSIR/DPR-ISG-02, "Emergency Planning Exemption Requests for Decommissioning Nuclear Power Plants." The guidance presented draws on past NRC practice. Site-specific analyses must "provide sufficient assurance that an offsite radiological release is not postulated to exceed the EPA PAGs at the site boundary, or that there is sufficient time to initiate appropriate mitigating actions by offsite agencies on an ad hoc basis to protect the health and safety of the public. The expected analysis will include the amount of time that lapses from when the SFP drains and air flow passages are blocked to when the hottest fuel assembly reaches 900 degrees Celsius." This calculation is consistent with this guidance.

Inputs to this calculation are summarized below for use in confirmatory calculations.

Maximum Zirconium Temperature

Several studies are presented in NUREG/CR-6451 discussing the maximum allowable temperature of zirconium cladding that will ensure that failure of the zirconium cladding will not occur. Per NUREG/CR-6451, 565 °C (1049 °F) is the lowest temperature where incipient cladding failure might occur. NUREG-1738 uses 900 °C (1652 °F) as the temperature where “runaway oxidation” is expected to occur (pg. 3-7 of NUREG-1738). These two temperatures are the critical temperatures of interest for this calculation.

Zirconium Properties

The specific heat of zirconium at 600 K (620 °F) is 322 J/kg-K and the density of zirconium is 6570 kg/m³ (Ref. 5.5, pg. 822). A temperature of 620 °F is in the temperature range (roughly the midpoint for both ranges) of this analysis. From Reference 5.5, the specific heat slightly increases with an increase in temperature for most of the range of temperatures in this analysis. At higher temperatures, the zirconium would heat up more slowly. This temperature (620 °F) is representative of the full temperature range for this analysis.

Spent Fuel Pool Temperature

Because this analysis assumes the accident will take place more than a year after the last offload, the initial temperature used in this analysis is 140 °F. Table 9.1-AA of the UFSAR states that the maximum allowable SFP temperature during normal conditions is 140 °F and that the maximum allowable SFP temperature under abnormal or refueling conditions is 160 °F.

Geometry for Limiting Assemblies

Fuel assembly geometry data used in this calculation are applicable to all SONGS 2 and 3 fuel assemblies.

Fuel Pellet Diameter	0.3255 inches
Cladding Thickness (diametral)	0.050 inches
Outer Diameter of Cladding	0.382 inches
Rod Configuration and Total Spaces	16 x 16, 256 spaces
Number of Guide Tubes, Instrument Tubes	5 guide tubes (each occupies the space of 4 rods)
Total Number of Heated Rods	236 rods
Guide Tube Thickness	0.040 inches
Outer Diameter of Guide Tubes	0.980 inches
Heated Height of Rods	150.00 inches
Cladding and Guide Tube Material	Zirconium Alloy for CE Fuel M5 for AREVA Fuel
Theoretical Uranium Dioxide Density	10.96 g/cm ³
Theoretical Uranium Dioxide Density Percentage ¹	94.5% - 96.5% for CE Fuel 97.5% max for AREVA Fuel
Core Thermal Power (Section 1.0 of Ref. 2.3)	3438 MWt
Number of Assemblies in Core (Ref. 2.5)	217

1. A smaller uranium density percentage results in a smaller thermal mass and therefore a shorter heatup time. Therefore a TD for uranium dioxide of 94.5% is used in this analysis.

Heat Load

The assembly with the highest heat load will have the shortest heat-up time. The table showing the maximum fuel assembly heat generation rate for several years is below.

Heat Generated by Highest Heat Load Assembly

Date	Watts
June 12, 2013	4381
October 12, 2013	3624
February 12, 2014	3076
June 12, 2014	2653
October 12, 2014	2314
February 12, 2015	2054
June 12, 2015	1847
December 12, 2015	1608
June 12, 2016	1433
December 12, 2016	1300

4.1.2 Methodology

The adiabatic heatup calculation uses the hottest fuel assembly in the SONGS pools based on fuel management records and determined its heat generation rate as a function of the decay date. For example, as of June 12, 2014, the heat generation rate in the hottest fuel assembly will be 2653 Watts (9052 BTU/hr). The bundle was

analyzed as a closed system with no work or heat transfer out of the system. However, there is heat generation in the system. The fuel bundle is modeled as being insulated by a perfect insulator. The masses and specific heats were identified for the materials that make up the fuel assembly: specifically the uranium dioxide (UO₂) and zirconium alloy.

The fundamental equation for a closed system is:

$$Q + W = \Delta U \text{ (Reference 5.6)}$$

Since work (W) is zero the equation reduces to:

$$Q = \Delta U = m \cdot C_p \cdot (\Delta T) \text{ (mass X specific heat of the materials X temperature change)}$$

Q is a function of heat generation rate and time:

$$Q = \dot{Q} \cdot t, \text{ where } \dot{Q} = \text{the heat generation rate}$$

Solving for the heat up time, the equation becomes:

$$t = m \cdot C_p \cdot (\Delta T) / \dot{Q}$$

4.1.3 Results

As of August 2013, the heat up time to 900°C was more than 10 hours.

4.1.4 Conclusions

The analysis demonstrates that as of August 2013 SONGS Units 2 and 3 satisfied the criterion discussed in Interim Staff Guidance NSIR/DPR-ISG-02, "Emergency Planning Exemption Requests for Decommissioning Nuclear Power Plants." As of August 2013 it would take more than 10 hours for the hottest fuel assembly to reach 900°C.

4.2 DOSE RATES DUE TO SPENT FUEL ASSEMBLIES IN SONGS SPENT FUEL POOL FOLLOWING DRAIN DOWN

4.2.1 General Description

The purpose of this calculation is to evaluate the effects of a loss of water inventory from the SONGS spent fuel pools as of June 12, 2013, the date on which SCE certified permanent cessation of power operations of SONGS Units 2 and 3. Specifically, the primary purpose of this calculation is to determine the potential radiological impact due to loss of shielding to the public at the Exclusion Area Boundary for the event in which the spent fuel assemblies are uncovered following drain down. This is a beyond design basis event.

Dose rates have been calculated at other locations to provide supplemental information regarding the impact to plant personnel. This information can be used to provide some level of preplanning in the event the spent fuel assemblies are uncovered following drain down, however those results are not reported in this summary.

Neutron, (neutron,gamma), and gamma dose rates for the Exclusion Area Boundary locations are reported in this summary.

4.2.2 Methodology

The Monte Carlo N-Particle version 5-1.60 (MCNP5) (Reference 5.7) radiation transport computer code is used for calculating the dose rates from the SONGS SFP. MCNP5 was developed and is maintained by the Los Alamos National Laboratory and is widely used and accepted by the nuclear utility industry to perform radiological analysis. MCNP5 has undergone verification and validation under the vendor Nuclear QA Program.

The source terms for neutron and gamma radiation in spent fuel pools were calculated with consideration of plant shutdown dates as outlined earlier.

4.2.3 Results

A summary of the results from calculations performed are provided in this section. The summary is based on the condition of SONGS spent fuel assemblies as of June 12, 2013. The dose rate results decrease for later dates. Table 6 presents the dose rates at the EAB based on a beyond design basis accident event (loss of water inventory in the SFP) due to direct and scattered radiation from spent fuel assemblies in a SONGS SFP.

**Table 6: Maximum Dose Rates at the SONGS EAB
As of June 12, 2013**

	Dose Rate (mRem/hr)
Gamma	1.55E-02
Neutron	5.40E-05
(Neutron, Gamma)	6.05E-06

The results of the MCNP5 calculation have relative errors less than 0.05 and thus pass the statistical checks described in the MCNP5 user manual.

4.2.4 Conclusions

Based on calculated direct and scattered dose rates from spent fuel assemblies in a SONGS SFP following drain down, it is concluded that the maximum dose at the EAB

would be well below the acceptance criteria. The acceptance criterion for exemption from requiring offsite emergency planning zones is less than 1 rem projected dose for a four day period. The acceptance criterion for establishing the EALs proposed in this request is less than 100 mrem for a two hour period to a member of the public.

5.0 REFERENCES

- 5.1 Letter from T. J. Palmisano (SCE) to the U. S. Nuclear Regulatory Commission (NRC) dated 03/31/2014; Subject: Docket Nos. 50-206, 50-361, 50-362, and 72-041, Emergency Planning Exemption Request, San Onofre Nuclear Generating Station, Units 1, 2, and 3 and Independent Spent Fuel Storage Installation
- 5.2 Letter from P. T. Dietrich (SCE) to the U. S. Nuclear Regulatory Commission (NRC) dated June 12, 2013; Subject: Certification of Permanent Cessation of Power Operations San Onofre Nuclear Generating Station, Units 2 and 3
- 5.3 Letter from P. T. Dietrich (SCE) to the U. S. Nuclear Regulatory Commission (NRC) dated June 28, 2013; Subject: Permanent Removal of Fuel from the Reactor Vessel, San Onofre Nuclear Generating Station Unit 3
- 5.4 Letter from P. T. Dietrich (SCE) to the U. S. Nuclear Regulatory Commission (NRC) dated July 22, 2013; Subject: Permanent Removal of Fuel from the Reactor Vessel, San Onofre Nuclear Generating Station, Unit 2
- 5.5 Incropera & DeWitt, "Fundamentals of Heat and Mass Transfer," Fifth Edition, John Wiley & Sons, Inc., 2002
- 5.6 "Marks Standard Handbook for Mechanical Engineers," 9th Edition
- 5.7 MCNP5, S&L Computer Program Number 03.7.511-5.0-1.60, Version 1.60

6.0 REGULATORY EVALUATION

The proposed amendment to the San Onofre Nuclear Generating Station (SONGS) Radiological Emergency Response Plan (RERP) for San Onofre Nuclear Generating Station (SONGS) Units 1, 2, and 3, and the Independent Spent Fuel Storage Installation is being submitted to the NRC pursuant to 10 CFR 50.90. The proposed changes discontinue offsite emergency planning activities and reduce the scope of onsite emergency planning as a result of the substantially lower onsite and offsite radiological consequences of accidents possible at SONGS. This submittal provides a plan appropriate for a defueled nuclear power plant. The new SONGS Permanently Defueled Emergency Plan (PDEP) relies on exemptions from portions of 10 CFR 50.47(b), 10 CFR 50.47(c)(2), and 10 CFR 50, Appendix E which are being requested under separate cover.

6.1 No Significant Hazards Consideration Determination

Southern California Edison (SCE) has evaluated whether a significant hazards consideration is posed by granting the license amendment requested. Southern California Edison (SCE) has evaluated whether or not a significant hazards consideration is involved with the proposed changes by addressing the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

- (1) *Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?*

San Onofre Nuclear Generating Station (SONGS Units 2 and 3 have permanently ceased operation (Reference 6.5.1). The proposed amendment would replace the Radiological Emergency Response Plan (RERP) with the Permanently Defueled Emergency Plan (PDEP) to correspond to the reduced scope of remaining accidents and events. The proposed changes discontinue offsite emergency planning activities and reduce the scope of onsite emergency planning as a result of the substantially lower onsite and offsite radiological consequences of accidents possible at SONGS. The proposed amendment is consistent with the criterion discussed in Interim Staff Guidance NSIR/DPR-ISG-02, "Emergency Planning Exemption Requests for Decommissioning Nuclear Power Plants."

The proposed amendment has no effect on structures, systems, and components (SSCs) and no effect on the capability of any plant SSC to perform its design function. The proposed amendment would not increase the likelihood of the malfunction of any plant SSC.

The spent fuel pool and its support systems are used for spent fuel storage. It is estimated that SONGS will remain in a wet fuel storage configuration for approximately five years. In this condition, the spectrum of postulated accidents is much smaller than for an operational plant. As a result of the certifications submitted by SCE in accordance with 10 CFR 50.82(a)(1), and the consequent removal of authorization to operate the reactor or to place or retain fuel in the reactor in accordance with 10 CFR 50.82(a)(2), most of the accident scenarios postulated in the SONGS Final Safety Analysis Report are no longer possible. The proposed amendment continues to maintain the effectiveness for coping with radiological emergencies that are postulated to occur in the permanently defueled condition. The ability to identify, assess, and mitigate these remaining events will be maintained such that there will be no significant increase in the consequences of any event.

The proposed license amendment will not significantly increase the probability of occurrence of previously evaluated accidents, since most previously analyzed accidents can no longer occur and the probability or consequences of the few remaining are unaffected by the proposed amendment.

Therefore, the proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated.

- (2) *Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?*

The proposed amendment does not involve any change in the plant's design, configuration, or operation. The proposed changes discontinue offsite emergency planning activities and reduce the scope of onsite emergency planning as a result of the substantially lower onsite and offsite radiological consequences of accidents possible at SONGS. The proposed changes have no impact on facility SSCs affecting the safe storage of irradiated fuel, or on the methods of operation of such SSCs, or on the handling and storage of irradiated fuel itself. The SONGS PDEP is for the plant's defueled condition. There is no impact on the prevention, diagnosis, or mitigation accidents previously evaluated. Accidents cannot result in different or more adverse failure modes or accidents than those previously evaluated because the reactors are permanently shut down and defueled and SONGS is no longer authorized to operate the reactors.

The proposed PDEP does not make changes to the systems credited in the remaining relevant accident analyses. The proposed PDEP continues to require proper control and monitoring of safety significant parameters and activities and continues to require dose assessments to determine any radiological releases and to maintain prompt communications with offsite organizations.

The proposed amendment does not result in any new mechanisms that could initiate damage to the remaining relevant safety barriers for defueled plants (i.e., fuel cladding and spent fuel pool inventory). Since extended operation in a defueled condition is the only operation currently allowed, and therefore bounded by the existing analyses, such a condition does not create the possibility of a new or different kind of accident.

The proposed amendment does not introduce a new mode of plant operation or new accident precursors, does not involve any physical alterations to plant configuration, or make changes to system setpoints that could initiate a new or different kind of accident.

Therefore, the proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated.

- (3) *Does the proposed amendment involve a significant reduction in a margin of safety?*

The proposed amendment does not involve a change in the plant's design, configuration, or operation. The proposed amendment does not affect either the

way in which the plant SSCs perform their safety function or its design and licensing bases.

Because the 10 CFR Part 50 licenses for SONGS no longer authorize operation of the reactor or emplacement or retention of fuel into the reactor vessel, as specified in 10 CFR 50.82(a)(2), the occurrence of postulated accidents associated with reactor operation is no longer possible. The proposed amendment does not adversely affect the inputs or assumptions of any of the remaining design basis analyses.

The proposed changes that are limited to the SONGS PDEP do not impact the safe storage of irradiated fuel. The revised PDEP does not affect any requirements for SSCs credited in the remaining analyses of applicable postulated accidents; and as such, does not significantly reduce the margin of safety associated with these accident analyses. Postulated design basis accidents involving the reactor are no longer possible because the reactor is permanently shut down and defueled and SONGS is no longer authorized to operate the reactors.

Therefore, the proposed amendment does not involve a significant reduction in a margin of safety.

Based on the above, SCE concludes that the proposed amendment does not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92(c). Accordingly, a finding of "no significant hazards consideration" is justified.

6.2 Applicable Regulatory Requirements

As indicated above, the SONGS PDEP relies on exemptions from portions of 10 CFR 50.47(b), 10 CFR 50.47(c)(2), and 10 CFR 50, Appendix E which are being requested under separate cover. The provisions from 10 CFR 50.47, 10 CFR 50.54(q) and 10 CFR 50 Appendix E associated with the proposed PDEP for SONGS are discussed below.

10 CFR 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, "*...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.*"

10 CFR 50.47(b) establishes the standards that the onsite and offsite emergency response plans must meet for the NRC staff to make a positive finding that there is reasonable assurance that the licensee can and will take adequate protective measures in the event of a radiological emergency. Planning Standard (4) of this section requires that a licensee's emergency response plan contain the following:

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

10 CFR 50.54(q)(4) specifies the process for revising emergency plans where the changes reduce the effectiveness of the plan. This regulation states the following:

“The changes to a licensee's emergency plan that reduce the effectiveness of the plan as defined in paragraph (q)(1)(iv) of this section may not be implemented without prior approval by the NRC. A licensee desiring to make such a change after February 21, 2012 shall submit an application for an amendment to its license. In addition to the filing requirements of §§50.90 and 50.91, the request must include all emergency plan pages affected by that change and must be accompanied by a forwarding letter identifying the change, the reason for the change, and the basis for concluding that the licensee's emergency plan, as revised, will continue to meet the requirements in appendix E to this part and, for nuclear power reactor licensees, the planning standards of § 50.47(b).”

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

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

The underlying purpose of 10 CFR 50.47(b), 10 CFR 50.54(q), and 10 CFR 50, Appendix E, is to ensure that there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency, to establish plume exposure and ingestion pathway EPZs for nuclear power plants, and to ensure that licensees maintain effective offsite and onsite emergency plans, with the cooperation and assistance of State and local authorities.

The radiological consequences of the design basis accidents that remain possible at SONGS are substantially lower than those at an operating plant. The upper bound of offsite dose consequences of accidents limits the highest attainable emergency class to the Alert level (projected or actual offsite doses greater than 1% but less than 10% of the Protective Action Guidelines (PAGs)). In addition, because of the reduced consequences of radiological events still possible at the site, the scope of the onsite

emergency preparedness organization may be accordingly reduced. At an Alert level declaration, the awareness of the Onsite Response Organizations is heightened, allowing them to be better prepared should it be necessary to consider further actions. Thus, the underlying purpose of the regulations will not be adversely affected by eliminating offsite emergency planning activities or reducing the scope of onsite emergency planning.

The accident analysis also demonstrates that there is ample time to respond to a beyond design basis spent fuel pool accident at SONGS to prevent the EPA PAGs from being exceeded at the site boundary. Further, because of the considerable time available to respond to beyond design basis spent fuel pool events, there is confidence that offsite measures for the public could be taken on an ad hoc basis prior to causing any off-site consequences, if necessary.

The proposed amendment is being submitted to the NRC pursuant to 10 CFR 50.90, for the purpose of changing the SONGS RERP to the PEDP in order to establish a plan appropriate for a defueled nuclear power plant. The proposed change does not alter any technical content of the SONGS Technical Specifications requirements, nor does it have any programmatic effect on the Quality Assurance Program description.

6.3 Conclusion

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by the change to the SONGS PDEP, (2) activities at SONGS will continue to be conducted in compliance with the Commission's regulations (as exempted), 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.

6.4 ENVIRONMENTAL IMPACT EVALUATION

10 CFR 51.22(c)(9) provides criteria for and identification of licensing and regulatory actions eligible for categorical exclusion from performing an environmental assessment. A proposed amendment to an operating license for a facility requires no environmental assessment if the amendment changes a requirement with respect to use of a facility component within the restricted area provided that (i) the amendment involves no significant hazards consideration, (ii) there is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite, and (iii) there is no significant increase in individual or cumulative occupational radiation exposure.

SCE has reviewed the amendment applications and has determined that they meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22, no environmental impact statement or environmental assessment needs to be prepared in connection with the issuance of the proposed license amendment. The following is the basis for this determination:

- (i) The amendment applications do not involve a significant hazards consideration, as described in the Significant Hazards Evaluation in 6.1 above.
- (ii) There will be no significant change in the types or a significant increase in the amounts of any effluents released offsite. Effluent flow and flow-paths have been substantially reduced and will be reduced further if not eliminated in coming months. There will be no significant change in the types or increase in the amounts of any effluents that may be released offsite and does not involve irreversible environmental consequences beyond those already associated with the SONGS Final Environmental Statement and the Generic EIS on Decommissioning of Nuclear Facilities (NUREG-0586, Supplement 1, 2002).
- (iii) The amendment applications do not result in a significant increase to the individual or cumulative occupational radiation exposure because the proposed change involves changes to the Emergency Plan which are of administrative, managerial or organizational nature with no significant impact on occupational radiation exposure. Therefore, the amendment applications do not result in a significant increase to the individual or cumulative occupational radiation exposure.

In accordance with 10 CFR 51.30, "Environmental Assessment," and 51.32, "Finding of No Significant Impact," the following additional information is provided in support of an environmental assessment and finding of no significant impact for the proposed changes. The proposed change will not increase the probability or consequences of accidents. No changes are being made in the types or quantities of effluents that may be released offsite, and there is no significant increase in occupational or public radiation exposure. Therefore, there are no significant radiological environmental impacts associated with the amendment applications. The amendment applications do not affect non-radiological plant effluents and have no other environmental impact. Therefore, there are no significant non-radiological impacts associated with the amendment applications. Based on the assessment above, the amendment applications will not have a significant effect on the quality of the human environment.

6.5 REFERENCES

1. SONGS to NRC letter, "Certification of Permanent Cessation of Power Operations dated June 12, 2013, San Onofre Nuclear Generating Station Units 2 and 3. (ADAMS Accession No. ML131640201)

Enclosure 2

San Onofre Nuclear Generating Station (SONGS) Permanently Defueled Emergency Plan

(Volume 1, PDEP-1)

Prepared by: _____ Date
xxxx

Reviewed by: _____ Date
xxxx

Approved by: _____ Date
xxxx

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Volume 2 – PDEP-2, EAL Technical Bases Manual

Section A: Purpose

The purpose of this Permanently Defueled Emergency Plan (PDEP) is to assure an adequate level of preparedness by which to cope with a spectrum of emergencies that could be postulated to occur, including means to minimize radiation exposure to plant personnel. This PDEP integrates the necessary elements to provide effective emergency response considering cooperation and coordination of organizations expected to respond to potential emergencies.

Section B: Background

SONGS is owned by Southern California Edison (SCE), San Diego Gas and Electric (SDG&E) and the cities of Anaheim and Riverside, California. SCE is authorized to act as agent for the co owners and has exclusive responsibility for the operation of the facility.

The PDEP describes the station's plan for responding to emergencies that may arise at the station while in a permanently shutdown and defueled configuration. All irradiated fuel is stored in the Independent Spent Fuel Storage Installation (ISFSI) and in the Spent Fuel Pool. In this condition, no reactor operations can take place and the station is prohibited from moving the fuel from the Spent Fuel Pool to the reactor vessel. An analysis of the possible design basis events and consequences is presented in the evaluation of the Safety Analysis Report accident assessment. This PDEP addresses the risks associated with SONGS current conditions.

The analysis of the potential radiological impact of an accident in a permanently defueled condition indicates that any releases beyond the Site Boundary are limited to small fractions of the Environmental Protection Agency (EPA) Protective Action Guide (PAG) exposure levels, as detailed in the EPA's "Protective Action Guide and Planning Guidance for Radiological Incidents," Draft for Interim Use and Public Comment dated March 2013 (PAG Manual). Exposure levels, which warrant pre-planned response measures, are limited to onsite areas. For this reason, radiological emergency planning is focused onsite.

Section C: Scope

SONGS has developed this PDEP to respond to potential radiological emergencies at the station considering it's permanently shutdown and defueled status. Because there are no postulated accidents that would result in off-site dose consequences that are large enough to require off-site emergency planning, the overall scope of this plan delineates the actions necessary to safeguard onsite personnel and minimize damage to property.

In addition to the description of activities and steps that can be implemented during a potential emergency, this PDEP also provides a general description of the steps taken to recover from an emergency situation. It also describes the training, drills, planning, and coordination appropriate to maintain an adequate level of emergency preparedness.

Section D: Planning Basis

The concepts presented in this PDEP address the applicable regulations stipulated in 10 CFR 50.47, "Emergency Plans" and 10 CFR 50, Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities" and are consistent with the applicable guidelines established 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."

Exemptions to 10 CFR 50.47 and 10 CFR 50 Appendix E for SONGS were granted by the Nuclear Regulatory Commission (NRC) per XXX (xx/xx/xx).

The PDEP revision 0 was approved for use by the NRC per Safety Evaluation Report (SER) XXX (xx/xx/xx).

Section E: Emergency Response Organization

SONGS has primary responsibility for planning and implementing emergency measures within the site boundary including overall accident assessment. These emergency measures include mitigation, corrective actions, protective measures, and aid for personnel onsite. To assist in accomplishing these responsibilities, advance arrangements have been made with offsite organizations for special emergency assistance such as ambulance, medical, hospital, fire, and police services.

Section F: Form and Content of Plan

The PDEP has been formatted similar to 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." The use of this format lends itself to uncomplicated comparison with the criteria set forth in NUREG-0654/FEMA-REP-1 and addresses the guidance provided in NSIR/DPR-ISG-02, Emergency Planning Exemption Requests for Decommissioning Nuclear Power Plants.

Each Part II section begins by listing the planning standard implemented by section as modified by the exemptions granted to SONGS by the NRC for a permanently defueled station.

A. Assignment of Responsibility

Planning Standard 50.47(b)(1) – Primary responsibilities for emergency response by the nuclear facility licensee and by State and local organizations have been assigned, the emergency responsibilities of the various supporting organizations have been specifically established, and each principal response organization has staff to respond and to augment its initial response on a continuous basis.

1. Concept of Operations

The relationships and the concept of operations for the organizations and agencies that are a part of the overall ERO are as follows:

a. Primary Governmental Response Organizations

Identified below are federal, off-site agencies, and county organizations that are involved in a response to an emergency at SONGS.

1) Federal Agencies

The National Response Framework (NRF) is a guide to how the Nation responds to all types of disasters and emergencies. It is built on scalable, flexible, and adaptable concepts identified in the National Incident Management System (NIMS) to align key roles and responsibilities across the Nation. The NRF describes specific authorities and best practices for managing incidents that range from the serious but purely local to large-scale terrorist attacks or catastrophic natural disasters. The NRF describes the principles, roles and responsibilities, and coordinating structures for delivering the core capabilities required to respond to an incident and further describes how response efforts integrate with those of the other mission areas. The federal family response for an emergency at a SONGS station is made up of the following:

a) Nuclear Regulatory Commission (NRC)

With regard to emergency preparedness, the NRC will perform the following:

- Assess licensee emergency plans for adequacy;
- Make decisions with regard to the overall state of emergency preparedness and issuance of operating licenses.
- Coordinate with other federal response agencies.

The NRC will respond to incidents at licensed facilities or vehicular accidents involving licensed materials, including radionuclides, in transit. The NRC will act as the lead Federal agency with regard to technical response during a nuclear incident including radiological assistance.

b) Department of Homeland Security (DHS)

Per the NRF, DHS is responsible for the overall coordination of a multi-agency Federal response to a radiological incident. The primary role of DHS is to support local agencies by coordinating the delivery of Federal non-technical assistance. DHS coordinates local agencies requests for Federal assistance, identifying which Federal agency can best address specific needs.

c) Marine Corps Base, Camp Pendleton

Marine Corps Base, Camp Pendleton is the responsible agency for all emergency responses affecting all personnel located at the Base. The Commanding General, Marine Corps Base is the decision maker. Through a Letter of Agreement the Marine Corps Base Fire Department provides fire, medical, and rescue responses to SONGS.

d) Federal Bureau of Investigation (FBI)

The FBI acts as the lead agency for the coordination of law enforcement agencies responding to Security related events at the San Onofre Nuclear Generating Station. Response actions to Security events are addressed in the SONGS Safeguards Contingency Plan.

2) State of California

The California Office of Emergency Services (OES) is designated the state authority for coordination of all State level response. Cal OES is the primary state response agency that coordinates the State's response to requests for assistance from local jurisdictions. The primary method of initial notification of Cal OES is by a commercial telephone line from the SONGS Command Center to the Warning Center in Sacramento.

3) Local Agenciesa) Orange County

The Orange County Sheriff's Department is responsible for offsite coordination and response in unincorporated Orange County.

b) San Diego County

The San Diego County Office of Emergency Services is the lead governmental agency for offsite coordination and response in San Diego County.

b. SONGS Concept of Operations

During an emergency the ERO replaces the normal station organization. The ERO provides the following functions:

- Control and operation of station activities.
- Mitigation of the emergency condition.
- Protection of station personnel.
- Emergency event classification.
- Emergency notifications to Federal, State and local agencies.
- Coordination of emergency support for fire fighting, security, and rescue/first aid.

c. Block Diagram of Organization Interrelationships

Interrelationships between major SONGS organizations and sub-organizations in the total response effort are illustrated in a block diagram in Figure A-1.

d. Individual in Charge of the Emergency Response

The individual in charge of the SONGS emergency response is given the title of Emergency Director.

e. 24 Hour Emergency Response

Individuals assigned to the shifts are available 24 hours per day. These individuals can perform all required response actions until individuals arrive to augment shift personnel.

2. State and County Functions and Responsibilities

The state and counties have plans that specify the responsibilities and functions for the major agencies, departments, and key individuals of their organizations. This information is located in their respective plans and standard operating procedures. These plans address multiple types of accidents which may occur at facilities within their jurisdictions.

3. Agreements in Planning Effort

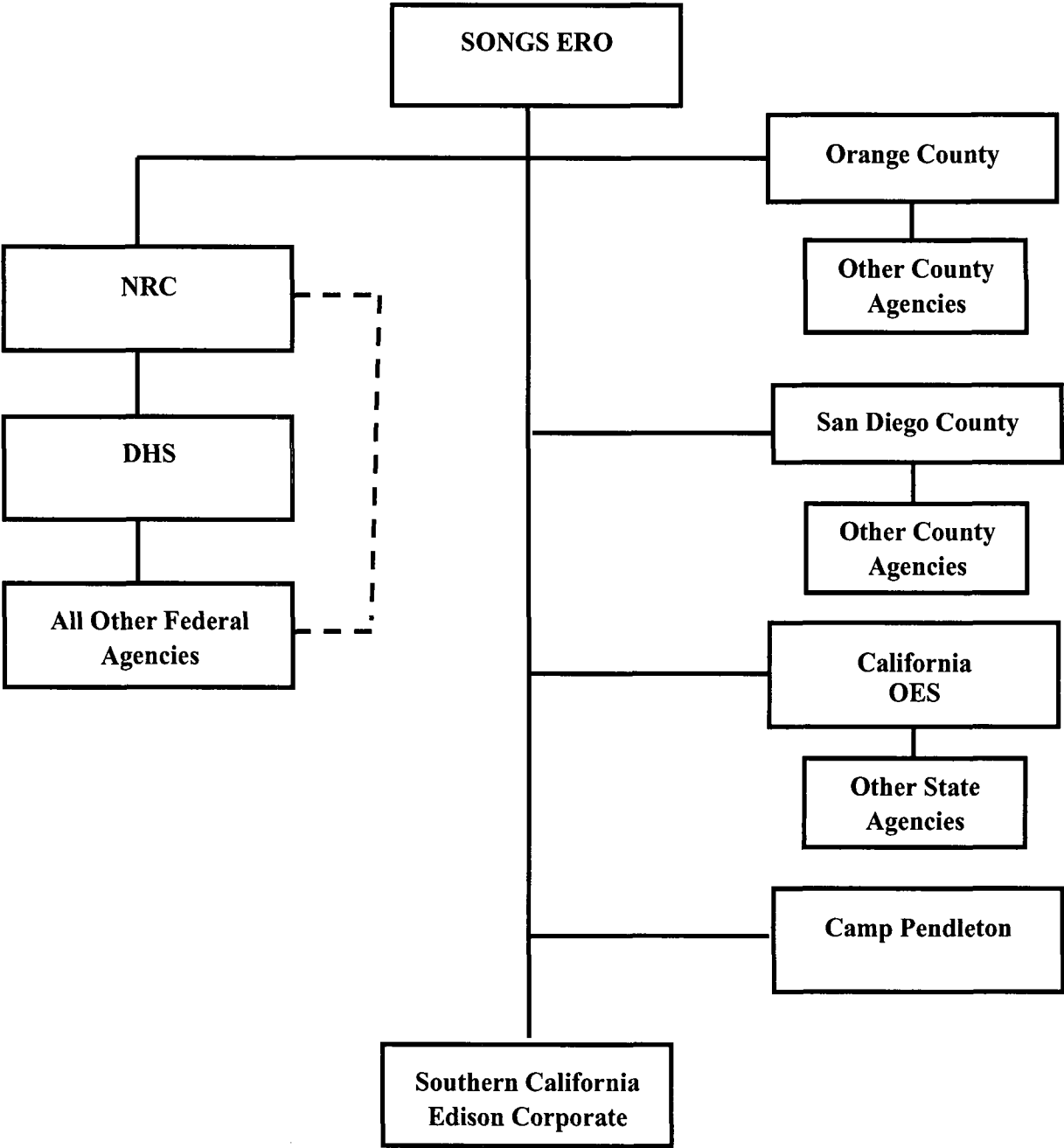
Written agreements describing the concept of operations between SONGS and other support organizations having an emergency response have been established. These agreements identify the emergency measures to be provided, the mutually accepted criteria for implementation, and the arrangements for exchange of information. A formal contract/purchase order is considered acceptable in lieu of a letter of agreement for the specified duration of the contract.

Appendix 1 of this PDEP contains the list of active and in force letters of agreement. The actual letters of agreement are maintained in Emergency Preparedness files.

4. Continuous Coverage

The ERO maintains the depth and capability for continuous 24-hour coverage of the emergency response for a protracted period.

Figure A-1: SONGS Emergency Response Organization Interrelationships



B. SONGS Emergency Response Organization

Planning Standard 50.47(b)(2) – On-shift facility licensee responsibilities for emergency response are unambiguously defined, adequate staffing to provide initial facility accident response in key functional areas is maintained at all times, timely augmentation of response capabilities is available and the interfaces among various onsite response activities and offsite support and response activities are specified.

1. On-Shift Emergency Response Organization Assignments

SONGS has personnel on-shift at all times that provide the initial response to an event. Members of the on-shift organization are trained on their responsibilities and duties in the event of an emergency and are capable of performing all necessary response actions until the augmenting ERO arrives or the event is terminated. The normal shift staffing assignments include the roles and responsibilities for their emergency response functions. The relationship between normal and emergency response positions for the shift personnel is unchanged when an event occurs.

Shift ERO Positions:

- a. Shift Manager (Emergency Director), see section B.4 for Emergency Director (ED) responsibilities.
- b. Plant Operator, performs system and component manipulations and basic radiation surveys as needed.
- c. Station Security will report to the ED when implementing the PDEP. Security personnel will assist ED as directed.

Refer to Table B-1, ERO Minimum Staffing Requirements, for summary of ERO shift and augmented positions.

2. Initial Assignment of Event Response Authority and Responsibility

The Shift Manager is the on-shift individual who declares the initial emergency classification and assumes the role of Emergency Director upon event declaration and has the authority and responsibility to immediately and unilaterally initiate any emergency actions. If the Shift Manager is unavailable or incapacitated for any reason the Plant Operator will assume duties until another Shift Manager arrives.

The Emergency Director has the authority to suspend any security measure described in the Physical Security Plan as necessary to facilitate response to emergency conditions.

3. Line of Succession

The Shift Manager assumes the title and responsibilities of the Emergency Director when an event is initially recognized and declared, and remains the Emergency Director throughout the event.

4. Functional Responsibilities of the Emergency Director

Non-delegable responsibilities of the Emergency Director include the following:

- Event classification and declaration.
- Notification of offsite authorities (State/local and NRC notifications).
- Authorization for the use of EPA-400 emergency exposure controls (emergency worker dose limits that exceed 10 CFR 20 occupational exposure limits).

Key delegable responsibilities of the Emergency Director include the following:

- Management of available station resources
- Initiation of assessment and mitigative/corrective actions
- Initiation of onsite protective actions
- Decision to call for offsite police, fire or ambulance assistance
- Augment the emergency staff as deemed necessary

5. Emergency Response Organization Positional Responsibilities

The Emergency Response Organization (ERO) is responsible for implementing the actions described in this Emergency Plan. The ERO is made up of shift personnel (described in section B.1), augmented by the Duty ERO Coordinator and supplemental positions described below.

The Duty ERO Coordinator shall report to the Command Center within 2 hours of declaration of an Alert classification or at the discretion of the Shift Manager for other events. The supplemental ERO is activated at the discretion of the Emergency Director and/or the Duty ERO Coordinator.

Duty ERO Coordinator

The Duty ERO Coordinator reports to the Emergency Director. The responsibilities of the Duty ERO Coordinator when implementing the PDEP include:

- Report to the Command Center and assist Emergency Director with assessment, mitigation, and communications tasks.
- Assist the Emergency Director to supplement the emergency staff as deemed necessary.
- Coordinate supplemental personnel and resource to support for emergency response.

The following positions are supplemental ERO and may be filled by staff or contract personnel possessing requisite knowledge to support the response:

a. Technical Coordinator

The Technical Coordinator reports to the Duty ERO Coordinator. The responsibilities of the Technical Coordinator when implementing the PDEP include:

- Assist with and arrange for other resources to evaluate technical data pertinent to plant conditions
- Augment the emergency staff as deemed necessary

- Assist with incident assessment and recommend mitigative and corrective actions
- Assist with search and rescue actions
- Coordinate maintenance and equipment restoration
- Establish and maintain communications as desired by the Emergency Director
- Maintain a record of event activities

b. Radiation Protection Coordinator

The Radiation Protection Coordinator reports to the Duty ERO Coordinator. The responsibilities of the Radiation Protection Coordinator when implementing the PDEP include:

- Monitor personnel accumulated dose
- Advise the Emergency Director concerning Radiological EALs
- Augment the emergency staff as deemed necessary
- Establish Radiological Controls
- Perform Dose Assessment
- Establish and maintain communications as desired by the Emergency Director
- Maintain a record of event activities

c. Radiation Protection Technicians (RPTs)

RPTs report to the Radiation Protection Coordinator when activated.

RPTs are called as needed to support emergency response. They may be provided through a services contract.

Technicians perform radiological monitoring and surveys of plant areas and radionuclide analysis of air and water samples. When an event is classified and the PDEP is implemented, the Technicians report to the Radiation Protection Coordinator. Their responsibilities when implementing the PDEP include:

- Perform radiological monitoring and surveys as directed
- Ensure the habitability of the occupied areas of the plant
- Monitor personnel exposures
- Perform radioisotopic analysis as directed
- Establish and monitor Radiological Control Areas (RCAs)
- Provide radiological and first aid support to search and rescue and medical emergencies.
- Maintain a record of event activities and surveys performed
- Perform decontamination functions as necessary

d. Other Emergency Response Personnel

Various emergency response personnel may be assembled as emergency needs dictate. Such personnel include: emergency services (fire, rescue, first aid), radiological monitoring and damage assessment, control and repair. Personnel from other SCE areas or outside private entities will be used to support emergency response.

6. Emergency Response Organization Block Diagram

Figure B-1 illustrates the overall emergency response organization.

7. Corporate Emergency Response Organization

No formal corporate response organization has been pre-identified. Southern California Edison will provide personnel and resource support as needed to mitigate any emergency conditions at the station. The company owns and operates an extensive fleet of ground transportation vehicles consisting of heavy-duty trucks, equipment, and four-wheel drive vehicles. These are available to SONGS as needed.

8. Industry/Private Support Organizations

Industry and private support will be used based on needs of the event.

9. Supplemental Emergency Assistance to the ERO

Agreements are maintained with outside support agencies who do not take part in the organizational control of the emergency that provide assistance when called on during an emergency or during the recovery phase. These agreements identify the emergency measures to be provided, the mutually accepted criteria for implementation, and the arrangements for exchange of information. These support agencies provide services of:

- a. Fire protection;
- b. Ambulance services;
- c. Medical and hospital support
- d. Law Enforcement

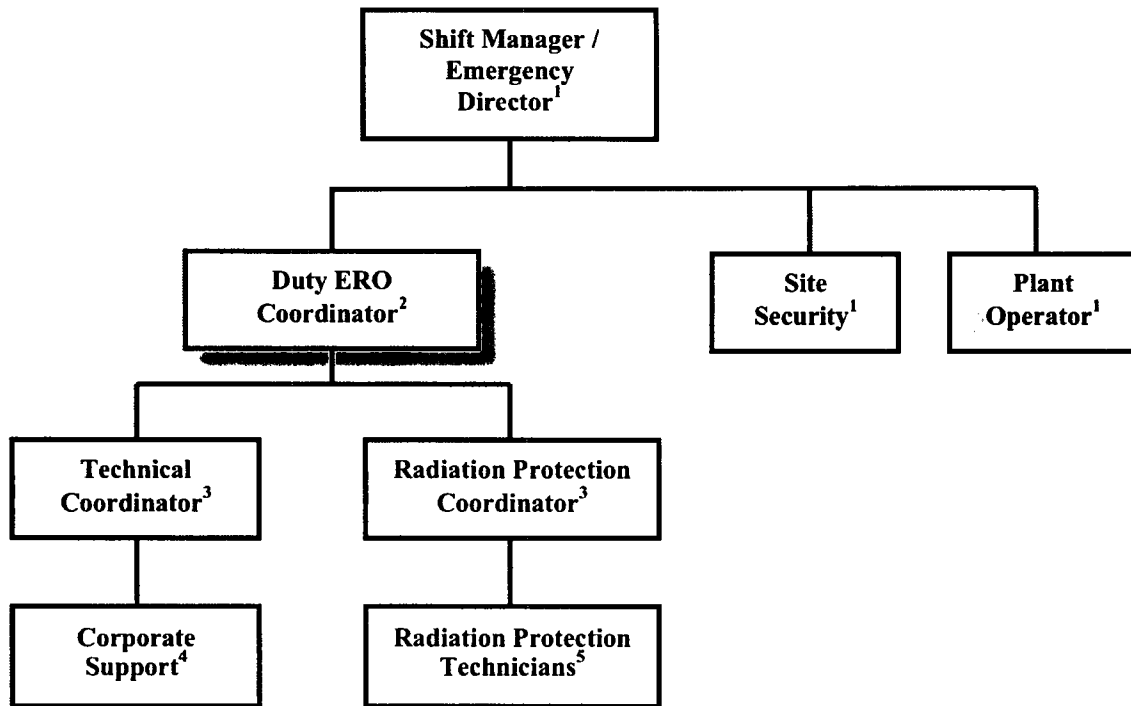
Support groups that provide fire protections are listed in Appendix 3, List of Letters of Agreement.

Support groups providing transportation and treatment of injured station personnel are described in Section L of this plan and Appendix 3.

Table B-1: ERO Minimum Staffing Requirements

Functional Area	Major Tasks	Emergency Positions	Shift Staffing	Augmented Staffing
1. Plant Operations, Assessment of Operational and Mitigation Aspects	Command Center Staff	Shift Manager Plant Operator	1 1	
2. Emergency Direction and Control	Command and Control	Shift Manager (Emergency Director)	1 ^(a)	
	ERO Coordination	Duty ERO Coordinator		1
3. Notification & Communication	Notification of Licensee	Shift Manager or Security	1 ^(a)	
	Local/ State			
	Federal			
4. Radiological Assessment	Supervision	Radiation Protection Coordinator		(b)
	Dose Assessment	Shift Manager or Plant Operator	1 ^(a)	
	Onsite Surveys	RP Support		(c)
	Offsite Surveys	RP Support		(d)
	Chemistry	Chemistry Support		(c)
5. Plant System Engineering, Repair, and Corrective Actions	Repair and Corrective Actions	Technical Coordinator		(b)
		Plant Operator Support Personnel	1 ^(a)	(c)
6. In-Plant PAs	Radiation Protection	Plant Operator	1 ^(a)	
7. Fire Fighting	--	Offsite fire fighting resources	(e)	
8. 1 st Aid and Rescue	--	Shift Personnel and Outside fire resources	(e)	
9. Site Access Control and Accountability	Security & Accountability	Security Personnel	(f)	
TOTAL:			2	1

- (a) Indicates concurrent or sequential functions performed by existing on shift minimum staff.
- (b) Supplemental positions called as needed based on event. May be contract personnel.
- (c) Number of Corporate Support, Radiation Protection, Repair Personnel and Chemistry personnel called to support onsite response based on event. May be contract personnel.
- (d) Pre planning for offsite surveys not required due to the radiological consequences of design basis accidents or other credible events not expected to exceed EPA Protective Action Guides. Survey can be performed with assistance from outside sources if deemed necessary.
- (e) Fire Fighting and rescue operations are provided by agreement with offsite resources.
- (f) Per the Station Security Plan.

Figure B-1: Emergency Response Organization**NOTES**

1. Shaded boxes indicate shift positions.
2. Shaded box indicates augmented position that will respond within 2 hours when called.
3. Pre-Designated supplemental positions, called as needed based on event.
4. Southern California Edison will provide or arrange for additional technical, maintenance and other support as needed to restore station to pre-event condition.
5. Radiation Protection Technicians are called to support response as needed. They may be provided by an Emergency Services Contract. Shift personnel are trained as radiation workers and to perform limited RP duties until additional support is available.

C. Emergency Response Support and Resources

Planning Standard 50.47(b)(3) – Arrangements for requesting and effectively using assistance resources have been made and other organizations capable of augmenting the planned response have been identified.

1. Federal Response Support and Resources

a. Individuals Authorized to Request Federal Assistance

The Emergency Director is authorized to request assistance as needed.

b. Federal Resources

Federal agencies that may provide assistance in direct support of SONGS in the event of an accident are identified in Section A of this plan.

c. Resources Available to Support Federal Response

The Command Center has space available to accommodate limited NRC response team members.

2. Liaisons

- a. If a near site Incident Command Post (ICP) has been established for a large scale or hostile actions event, SONGS will send liaisons to the ICP to provide specific information relative to the event and assist as needed.

3. Radiological Laboratories

Laboratory facilities are available and equipped to support normal plant and expected emergency operations. No outside laboratory services have been pre-arranged. Services will be contracted as needed for declared events. Agreements may also be used to obtain laboratory services from other stations.

4. Other Assistance

Refer to Appendix 3, List of Letters of Agreement for outside organizations that have pre-agreed arrangements to support onsite response actions.

No other specific assistance has been pre-identified.

D. Emergency Classification System

Planning Standard 50.47(b)(4) – 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.

1. Emergency Classification System

A graded scale of response for distinct classifications of emergency conditions, actions appropriate for those classifications, and criteria for escalation to a more severe classification is provided.

The station maintains the capability to assess, classify, and declare an emergency condition within 60 minutes of the availability of indications that an Emergency Action Level (EAL) has been exceeded.

- The 60-minute criterion will commence when plant instrumentation, plant alarms, computer displays, or incoming verbal reports corresponding to an EAL first become available to the individual in command and control (SM/ED) or Plant Operator.
- Validation or confirmation of plant indications, alarms or reports is to be accomplished within the 60-minute criterion as part of the classification assessment.
- For EAL thresholds that specify a duration (time imbedded EALs), the declaration process runs concurrently with that specified threshold duration. If it is determined that the condition will not clear within the time period, the event is declared regardless of whether the imbedded time period has been met. Once the condition has existed for the specified duration, no further classification assessment is warranted and the EAL must be promptly declared.
- The 60-minute criterion is not used as a grace period to attempt to restore plant conditions to avoid declaring an emergency in which an EAL has been exceeded.
- The 60-minute criterion will not prevent implementation of response actions necessary to protect public health or deny the State and local authorities the opportunity to implement measures necessary to protect the public health and safety.

SONGS utilizes the classification methodology endorsed by the NRC in Regulatory Guide 1.101 for the development of initiating conditions and emergency action levels.

The emergency classification system utilizes two categories for classification of emergency events. The specific initiating conditions for each classification and their corresponding emergency action levels are provided in the EAL Technical Bases Manual controlled as Volume 2 of this PDEP.

The definitions and discussions of the two Emergency Classification Levels (ECLs), from lowest to highest severity, are as follows:

a. Notification of Unusual Event

Events are in progress or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection has been initiated. No releases of radioactive material requiring off-site response or monitoring are expected unless further degradation of safety systems occurs.

This is the less severe of the two levels. The purpose of this classification is to bring response personnel and offsite agencies to a state of readiness in the event the situation degrades and to provide systematic handling of information and decision-making. The Shift Manager will classify a Notification of Unusual Event.

Required actions at this classification include:

- Notifications to station personnel.
- Notification, within 60 minutes, of the required off-site agencies.
- At the discretion of the Emergency Director augment shift personnel if needed.
- Notification of the Nuclear Regulatory Commission (NRC) as soon as possible but within 60 minutes of classification.
- Assessment of the situation and response as necessary, which may include escalating to a higher classification if conditions warrant.
- Appropriate measures to mitigate the effects of the emergency and return conditions to normal operation status.
- When the event is terminated, closeout is performed over communication links to offsite authorities (i.e., NRC and local agencies), followed by written summary within 24 hours.

b. Alert

Events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of HOSTILE ACTION. Any releases are expected to be limited to small fractions of the EPA PAG exposure levels.

The purpose of this classification is to ensure that emergency response personnel are readily available and to provide offsite authorities with current status information. An Alert will be classified as the initiating event or as escalation from a Notification of Unusual Event.

Required actions at this classification include:

- Notifications to station management.
- Notification, within 60 minutes, of the required off-site agencies.
- Activation of the Emergency Response Organization.
- Notification of the NRC as soon as possible but within 60 minutes of classification.

- Keeping offsite authorities informed of plant status by providing periodic updates to including radiological data.
- When the event is terminated, closeout is performed over communication links to offsite authorities (i.e., NRC and local agencies), followed by written summary within 8 hours.
- Site evacuation and personnel accountability may be directed by the Emergency Director based on hazards associated with the event.
- Appropriate measures to mitigate the effects of the emergency and return conditions to normal operation status.

2. Emergency Action Level Technical Bases

The initiating conditions, their corresponding emergency actions levels and the technical bases for each classifiable threshold are contained in the station's EAL Technical Basis Manual, which was based on NEI 99-01, Revision 6, Section 8 and Appendix C, and was approved for use by the NRC.

3. Offsite Classification Systems

SONGS emergency planning personnel periodically review the classification system with state and local agencies.

4. Offsite Emergency Planning

Offsite agencies maintain plans to respond to various natural or man-made emergencies. Although they may not be specific to an event at SONGS the Emergency Preparedness Manager should coordinate with offsite agencies for response planning to an emergency at the station.

E. Notification Methods and Procedures

Planning Standard 50.47(b)(5) – Procedures have been established for notification, by the licensee, of State and local response organizations and for notification of emergency personnel by all organizations; the content of initial and follow-up messages to response organizations has been established.

1. Bases for Notification of Offsite Agencies

SONGS, in cooperation with state and local authorities, has established mutually agreeable methods and procedures for notification of offsite response organizations consistent with the approved emergency classification level scheme. Notifications to offsite agencies include a means of verification.

2. Notification and Mobilization of Emergency Response Personnel

Emergency implementing procedures are established for notification and mobilization of emergency response personnel.

a. Notification of Onsite Personnel and Mobilization of the ERO

Each emergency classification results in onsite personnel being notified of the initial classification or any escalation of an emergency by recognizable alarms and/or verbal announcements over the plant Public Address (PA) System. Announcements include the emergency classification and response actions to be taken by personnel onsite (such as ERO, non-ERO, contractor personnel, and visitors). Provisions are made to alert personnel in high noise areas and outbuildings as applicable.

Provisions are established for notification of personnel within the Owner Controlled Area any time a Site Evacuation has been initiated, or as otherwise deemed appropriate.

When an emergency classification level is declared or upgraded, an announcement is made over the plant public address system (or by other means) that states the emergency classification level declared and response actions to be taken by site personnel.

At an Alert classification level all ERO augmentation personnel are notified to respond.

b. Notification and Mobilization of the Offsite Response Organizations (ORO)

When an emergency classification level is declared or upgraded, initial notifications are promptly made to staffed warning points for the OROs.

Notification and mobilization of federal, state and local agency response personnel is performed in accordance with their applicable emergency plans and procedures.

1) State and Local Response Agencies

State and local agency staffed Warning Points are notified within sixty (60) minutes of an event declaration (initial or an escalation) or change in radiological release status (occurring outside of an event classification, based on an agreement with the local agencies).

2) Nuclear Regulatory Commission (NRC)

The NRC is notified immediately after notification of the appropriate state and local agencies and not later than one (1) hour after the time of initial classification, escalation, termination or entry into the recovery phase.

For hostile action events, the NRC is notified immediately following or concurrent with state and local notifications.

c. Support Organizations

- Medical, rescue, and fire fighting support services are notified for assistance, using normal 911 procedures, as the situation dictates.
- The American Nuclear Insurers (ANI) is notified at an Alert classification with requests for assistance as necessary.

3. Initial Notification Messages

The Initial Emergency Notification Message contains the current emergency classification level and whether a release is taking place.

SONGS, in conjunction with authorities from local agencies has established the specific content and format of the initial notification message to be transmitted during an emergency, along with methods of transmission. The initial notification form will provide the following information if it is known and appropriate:

- a. Location of incident, and name and telephone number of caller.
- b. Date/Time of incident.
- c. Class of emergency.
- d. Type of actual or projected abnormal release (airborne or liquid).
- g. Actual or projected dose rates and/or integrated dose at the Site Boundary.
- h. Estimate of any abnormal surface radioactive contamination in plant or onsite.
- i. Plant emergency response actions underway.
- j. Request for offsite support from onsite personnel.
- k. Prognosis for event based on plant or response team information.

The following offsite agencies, at a minimum, will receive Initial Notification Messages:

- State of California
- Orange County
- San Diego County
- Marine Corps Base, Camp Pendleton

4. Follow-up Messages

Follow up calls will also be made to each of the lead agencies notified initially. Follow-up messages will be made approximately every 2 hours (or at time intervals agreed upon during each event) utilize a follow-up notification form with information similar to the initial notification form.

5. State and County Information Dissemination

Information dissemination is performed in accordance with state and local plans.

6. Notification of the Public

Notifications to the public are performed through the media in accordance with state and local plans.

7. Messages to the Public

Messages to the public are delivered through the media in accordance with state and local plans.

F. Emergency Communications

Planning Standard 50.47(b)(6) – Provisions exist for prompt communications among principal response organizations to emergency personnel.

1. Communications/Notifications

SONGS has reliable communication systems installed.

a. 24 Hour Notification Capabilities

SONGS maintains the capability to make initial notifications to the designated offsite agencies on a 24-hour per day basis.

b. Communications with State/Local Governments

Offsite notifications are provided to local agencies warning points (which are continually staffed) from the Command Center using commercial telephone lines or other mobile communications devices such as cell or satellite phones.

c. Communications with Federal Organizations

The Command Center uses NRC Emergency Notification System (ENS) phones through the Emergency Telephone System (ETS), commercial telephone lines, or other mobile communications devices such as cell or satellite phones to communicate with Federal Organizations.

d. Communications between Station Facilities

1. Private Automatic Exchange (PAX) Telephone System

The PAX telephone system provides communication capability between telephones located within the plant by dialing a five-digit station code.

The PAX telephone system also provides for outside communications through interconnections with the corporate telephone communications system and commercial telephone lines.

2. Local Commercial Telephone System

This system provides standard commercial telephone service through the public infrastructure, consisting of central offices and the wire line and microwave carrier.

e. ERO Notification System

ERO notification is performed by the use of the public address system and using a system of electronic devices (i.e. pagers, text message cell phones, etc.) and/or call trees via commercial telephone.

f. NRC Emergency Notification System (ENS)

Communications with the NRC Operations Center will be performed primarily via the NRC ENS, commercial telephone lines, or other mobile communications devices such as cell or satellite phones.

2. Medical Communications

Communications are established with a primary or backup medical hospital and transportation services via commercial telephone that is accessed by station personnel.

3. Communications Testing

Communications equipment is checked in accordance with Section H.10.

Communications equipment utilized to notify and communication with the NRC Headquarters and the appropriate NRC Regional Office Operations Center as described in F.1.f are tested monthly for operability.

Communications drills between SONGS and local agencies government facilities are conducted in accordance with Section N.2.a.

G. Emergency Public Information

Planning Standard 50.47(b)(7) – The principal points of contact with the news media for dissemination of information during an emergency are established in advance, and procedures for coordinated dissemination of information to the public are established.

The company's Corporate Communications Department is the principle point of contact for the dissemination of information during an event at the station. The Communications Department will disseminate information to the public through press releases and media conferences in accordance with current corporate communication protocols.

Due to the lack of postulated events that would impact offsite areas or requiring Offsite Response Organizations to take pre-planned actions, no arrangements are made for a Joint Information Center.

H. Emergency Facilities and Equipment

Planning Standard 50.47(b)(8) – Adequate emergency facilities and equipment to support the emergency response are provided and maintained.

1. Command Center

The Command Center is the onsite facility used to respond to emergency events. Plant systems and equipment parameters may be monitored in this location. Command Center personnel evaluate and control the emergency and initiate activities necessary for coping with the emergency. The Command Center may be relocated as determined by the Emergency Director in the event that it is threatened with security events or hazardous conditions. The activities conducted by the Command Center staff include:

- Initial direction of all plant related operations
- Accident recognition, classification, mitigation, and initial corrective actions
- Activation of emergency response facilities and ERO notification
- Notification of offsite agencies
- Continuous evaluation of the magnitude and potential consequences of an incident

In the event that augmented staff personnel respond, the Command Center provides space for those personnel to support the response. These activities include:

- Assessment of plant status
- Implementation of emergency actions and mitigation strategies.
- Provide voice communications with the NRC and local agencies as needed
- Radiological monitoring and assessment
- Brief and prepare personnel for work assignments in response to the event

2. Emergency Operations Facility

The SONGS PDEP does not include an Emergency Operations Facility.

3. Emergency Operations Centers

Offsite agencies maintain Emergency Operations Centers, for all types of emergencies, in accordance with their respective plans.

4. Activation

The Command Center is open on a continuing basis. There is no activation needed. The augmented ERO, which initially consists only of the Duty ERO Coordinator, reports to the Command Center within about 2 hours of declaration of an Alert classification or at the discretion of the Shift Manager for other events.

5. Onsite Monitoring Equipment

Radiation monitoring equipment provides radiological surveillance capabilities. The equipment provides for the following basic functions:

- Warns personnel of radiological health hazards, which have developed.
- Gives early warning of certain plant malfunctions, which might lead, to a radiological health hazard or plant damage.
- Prevents or minimizes the effects of inadvertent releases of radioactivity to the environment by consequence-limiting automatic responses.

Station instrumentation provides a display of plant parameters from which the safety status of systems can be assessed in the Command Center. Key parameters are:

- Gaseous Effluent Monitor readings
- Radiation Levels
- Fuel Handling Area Radiation Levels

Portable radiation and contamination monitoring instruments and sampling equipment normally utilized and maintained by the station is available for emergency use.

6. Offsite Monitoring Equipment

No radiation and contamination monitoring equipment is maintained specifically for offsite monitoring.

7. Offsite Monitoring Equipment Storage

Monitoring equipment is not stored offsite. Limited offsite monitoring near the site boundary will be performed using onsite equipment or arrangements will be made for additional equipment as needed.

8. Meteorological Monitoring

The station maintains meteorological instrumentation for near instant time readings of wind speed and direction to provide guidance if onsite protective actions are implemented.

Backup meteorological information can also be obtained from the National Weather Service.

9. Facility and Equipment Readiness

The Command Center and emergency equipment are inspected and inventoried quarterly and after each use in accordance with site procedures. These procedures provide information on location and availability of emergency equipment and supplies. A system of sealed containers or facilities may be utilized versus actual performance of item-by-item inventories.

10. General Use Emergency Equipment

Station procedures identify the general category of equipment and supplies that make up equipment available to assist with emergency response and requirements for inventorying and testing equipment. General types of equipment available to support emergency response include:

- Radiation Monitoring Equipment
- Contamination Control Supplies
- Decontamination Equipment and Supplies
- Protective Clothing
- Damage Control and Mitigation Equipment
- Communications and Radio Equipment
- Supplemental Lighting

The onsite storeroom maintains a supply of parts and equipment for normal plant maintenance. These parts, supplies and equipment are available for damage control use as necessary.

I. Accident Assessment

Planning Standard 50.47(b)(9) – Adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use.

1. Plant Parameters and Corresponding Emergency Classification

Emergency Action Level thresholds have been established in accordance with the NRC endorsed methodology in Regulatory Guide 1.101. Refer to section D.

The EAL Technical Bases Manual identifies the system parameter and effluent parameter values which can be used to determine the emergency condition.

Emergency Plan Implementing Procedures (EPIP) and EAL user aids have been developed to identify the system and effluent parameter values which are used to determine an existing emergency classification level.

2. Onsite Accident Assessment Capabilities

On-site capabilities and resources are available to provide initial and continuing information for accident assessment throughout the course of an event and include area and process radiation monitoring systems.

3. Source Term Determination

Station specific dose assessment procedures are used to calculate accumulated or projected dose at some time in the future if current or projected conditions continue. Radiological and meteorological readings are used to project dose rates at predetermined distances from the release point.

Due to the constantly declining source term, based on natural decay of fission products contained in the spent fuel, source terms used for dose projections can also be based on actual on or offsite radiological readings at the time of an event.

4. Effluent Monitor Data and Dose Projection

Station specific dose assessment procedures address calculating accumulated or projected dose at some time in the future if current or projected conditions continue. Radiological instrumentation readings and meteorological data are used to project dose rates at the Site Boundary, and to determine the integrated dose received.

5. Meteorological Information

Local meteorological information is available to the Command Center staff. The meteorological parameters include wind speed and direction. Procedures have been developed to determine stability class as needed for atmospheric dispersion calculations. A description of the onsite meteorological capabilities is given in Section H.

6. Off-scale or Inoperable Effluent Monitors (Unmonitored Releases)

Dose projections can be made during a release through use of actual survey and air sample data in situations where effluent monitors are either off-scale or inoperative or the release occurs by an unmonitored flow path.

7. Field Monitoring

In the event of a radiological release onsite field monitoring activities are performed by qualified individuals to confirm dose projections or assist in event classification. Portable radiological survey instrumentation and equipment is provided as part of the SONGS Radiation Protection Program. This equipment is available to support emergency response.

8. Field Monitoring Team

No pre defined field monitoring teams are assigned. Qualified individuals will be deployed as needed from the Command Center to perform surveys.

Prior to deployment, field monitoring teams are assembled at the Command Center to inventory and test survey and sampling equipment. Following the equipment and inventory checks, field monitoring teams are provided a briefing. Teams are then dispatched to perform surveys.

Communications are performed via radio or cell phones.

9. Air Monitoring

Instrumentation to measure radioactivity in counts per minute (cpm) and to determine dose rate in mRem/hr is used for detection and measurement of airborne isotopic concentrations. The air sample will be taken with a Portable Air Sampler. Air sampling results will be obtained through the use of a portable single channel analyzer and appropriate gamma sensitive detector.

The presence of significant levels of radioiodines in the spent fuel is extremely limited, therefore no special equipment is provided to measure for radioiodines.

10. Dose Estimates

Events at the permanently defueled station no longer can exceed the Alert level (i.e. offsite doses will not reach EPA Protective Action Guides). Dose estimates will be performed to determine projected onsite doses and potential offsite consequences of any release to the environment.

11. Offsite Agencies Monitoring Capabilities

The offsite agencies have the ability and resources to coordinate with federal monitoring teams as deemed necessary.

J. Protective Response

An exemption for offsite protective actions was granted for this Planning Standard and associated elements.

It is no longer possible for the radiological consequences of design basis accidents or other credible events at SONGS to exceed the limits of the EPA PAGs beyond the site boundary or require offsite protective actions. Therefore, protective actions for the public are no longer necessary and the emergency planning zones will no longer exist.

1. Protective Actions for Site Personnel

Protective actions for onsite personnel will be delineated in the site procedures and may include:

- Criteria for ordering a site evacuation
- Means and timely notification of onsite persons impacted
- Provisions for determining and maintaining accountability of assembled and evacuated personnel, and for identifying and determining the locations of personnel that were not evacuated
- Search and rescue
- Evacuation routes and means for transporting onsite personnel (e.g., privately owned vehicles, buses, company vehicles)
- Monitoring of evacuees for contamination and control measures if contamination is found
- Means for evacuating and treating onsite injured personnel, including potentially contaminated personnel

Notification and protective response actions for onsite emergency workers are also addressed in section E.2 and section K of this plan.

2. Mitigation Strategies and Equipment

SONGS has documented strategies for mitigation of designated emergencies involving the Spent Fuel Pool and has equipment available to be used in those strategies/mitigative actions.

The Shift Manager (Emergency Director) and Duty ERO Coordinator are responsible for assessing the need for and directing mitigation activities. Additional assistance may be provided by the Technical Coordinator upon arrival or via available communication devices. The Implementing Procedures to this plan detail their responsibilities and offer a brief summary of the available strategies.

K. Radiological Exposure Control

Planning Standard 50.47(b)(11) – Means for controlling radiological exposures, in an emergency, are established for emergency workers. The means for controlling radiological exposures shall include exposure guidelines consistent with EPA Emergency Worker and Lifesaving Activity Protective Action Guides.

1. Emergency Exposure Guidelines

SONGS maintains personnel exposure control programs in accordance with 10 CFR 20 under normal conditions. Personnel exposure levels are maintained under EPA-400 levels for emergency workers during declared emergencies.

In emergency situations, workers may receive exposure under a variety of circumstances in order to assure safety and protection of others and of valuable property. The Emergency Worker Dose Limits are as follows:

Dose Limit (Rem TEDE)	Activity	Condition
5	All	All Emergency Workers may be authorized up to 5 Rem Emergency Exposure for the emergency; however attempts should be made to keep exposures within 10CFR20 limits.
10	Protecting valuable property	Lower dose not practicable.
25	Lifesaving or protection of large populations	Lower dose not practicable.
> 25	Lifesaving or protection of large populations	Only on a voluntary basis to persons fully aware of the risks involved.

Limit dose to the lens of the eye to 3 times the above values and doses to any other organ (including skin and body extremities) to 10 times the above values.

2. Emergency Radiation Protection Program

Radiation protection guidelines include the following:

- Volunteers over forty-five years of age are considered first for any emergency response action requiring exposure greater than normal limits. Routine dose limits are and shall not be extended to emergency dose limits for declared pregnant individuals. As in the case of normal occupational exposure, doses received under emergency conditions should be maintained as low as reasonably achievable.
- Persons undertaking any emergency operation in which the dose will exceed 25 Rem TEDE should do so only on a voluntary basis and with full awareness of the risks involved including the numerical levels of dose at which acute effects of radiation will be incurred and numerical estimates of the risk of delayed effects.

- In the context of the emergency limits, exposure of workers that is incurred for the protection of large populations may be considered justified for situations in which the collective dose avoided by the emergency operation is significantly larger than that incurred by the workers involved.
- Exposure accountability is maintained and proper personnel radiological monitoring equipment is provided for personnel during emergency conditions.
- Access to high radiation areas is only permitted with prior approval. Personnel are not allowed to enter known or potential high radiation areas unless their exposure has been properly evaluated.
- Periodic habitability surveys of the Command Center are performed during an emergency. If the facility is determined to be uninhabitable, the facility is evacuated in order to prevent or minimize exposure to radiation and radioactive materials.
- Assembly areas are established, as necessary, to relocate and monitor personnel evacuated from areas of the plant.

Station Emergency Plan Implementing Procedures are in place for expeditious decision-making with reasonable consideration of the relative risks involved in a lifesaving mission involving radiation exposure.

3. Emergency Personnel Exposure and Records

a. Dosimetry

Emergency workers are issued permanent reading dosimeters as a means for recording exposure for permanent records prior to entering a radiologically controlled area. Additionally, personal are issued digital dosimetry capable of measuring dose and dose rate on a real time basis.

b. Dose Records

Emergency worker dose records are maintained in accordance with the emergency and radiological protection procedures. Emergency workers are instructed to read their dosimeters frequently. Permanent reading dosimeters may be processed with increased periodicity during an event.

4. Contamination Control and Decontamination

a. Action Levels for Determining the Need for Decontamination

During emergency conditions, normal plant contamination control criteria will be adhered to as much as possible. However, these limits may be modified by the Emergency Director should conditions warrant.

b. Means for Radiological Decontamination

Contaminated personnel will normally be attended to at an onsite decontamination area in accordance with radiation protection procedures. Decontamination showers and supplies are provided at those onsite areas. If contamination above acceptable levels is found, personnel will be decontaminated in accordance with plant procedures. If normal decontamination procedures do not reduce personnel contamination to acceptable levels, the case will be referred to a competent medical authority (refer to Section L).

Processes for the control of solid contaminated waste are established. Shower and sink drains are routed to where the liquid is contained or is processed and monitored prior to discharge.

Temporary decontamination areas can also be set up inside at various locations.

Arrangements have been made to transfer contaminated injured personnel to hospitals capable of assisting with treatment and decontamination efforts.

5. Contamination Control Measures

Onsite contamination controls are established to contain the spread of loose surface radioactive contamination.

a. Area Access Control

Contaminated areas are isolated as restricted areas with appropriate radiological protection and access control. Personnel leaving contaminated areas are monitored to ensure both themselves and their clothing are not contaminated. Supplies, instruments, and equipment that are in contaminated areas or have been brought into contaminated areas will be monitored prior to removal. Items found to be contaminated, will be decontaminated using normal plant decontamination techniques and facilities or may be disposed of as radioactive waste.

b. Drinking Water and Food Supplies

Measures will be taken to control onsite access to potentially contaminated potable water and food supplies. Under emergency conditions when uncontrolled releases of activity have occurred, eating and drinking are prohibited in station emergency response facilities until habitability surveys indicate that such activities are permissible.

c. Return of Areas and Items to Normal Use

Restricted areas and contaminated items will be returned to normal use when contamination levels have been returned to acceptable levels. Contamination control criteria for returning areas and items to normal use are contained in the plant procedures.

6. Provisions for Onsite Personnel

Protective equipment and supplies will be distributed (as needed) to personnel remaining or arriving on site during the emergency to minimize the effects of radiological exposures or contamination. Protective measures to be utilized are as follows:

- a. Individual Respiratory Protection: Emergency response personnel may be required to use respiratory protection in any environment involving exposure to airborne radio-nuclides, an oxygen deficient atmosphere, or where air quality is in doubt. In the presence of airborne particulates, qualified emergency response personnel may be directed by radiation protection personnel to use full-face filter type respirators. Self-Contained Breathing Apparatus (SCBA) is available for use by the ERO when needed due to hazardous conditions. The criteria for issuance of respiratory protection are described in station procedures.
- b. Use of Protective Clothing: Anti-contamination clothing, located in station dress out areas, is available for use by onsite personnel. The criteria for issuance of protective clothing are described in station procedures.

L. Medical and Public Health Support

Planning Standard 50.47(b)(12) – Arrangements are made for medical services for contaminated injured individuals.

1. Offsite Hospital and Medical Services

Arrangements, by letter of agreement or contract, are maintained with primary and back-up hospitals or medical facilities located in the vicinity of the station. These facilities are equipped and qualified for receiving and treating contaminated or exposed persons with injuries requiring immediate hospital care.

Letters of agreement or contracts for medical services for SONGS are listed in Appendix 3.

2. Onsite First Aid Capability

The station maintains onsite first aid supplies and equipment necessary for the treatment of contaminated or injured persons. Medical treatment given to injured persons is of a "first aid" nature. The functions of station personnel in handling onsite injured people are:

- 1) Administer first aid including such resuscitative measures as are deemed necessary;
- 2) Begin decontamination procedures; and
- 3) Arrange for suitable transportation to a hospital when required.

3. Medical Service Facilities

The following facilities are available to provide medical support for any contaminated injured individuals:

- Saddleback Memorial Medical Center, San Clemente Campus
- Mission Hospital

4. Medical Transportation

Arrangements are made by the station for prompt ambulance transport of persons with injuries involving radioactivity to designated hospitals. Such service is available on a 24-hour per day basis and is confirmed by letter of agreement.

If contaminated, efforts will be made to decontaminate the victim before transportation as long as the decontamination does not obstruct the medical attention given the victim or cause an unnecessary delay in transporting. During transportation Radiation Protection department personnel will accompany the victim and prevent the further spread of contamination.

M. Reentry and Recovery Planning

<i>Planning Standard 50.47(b)(13) – General plans for recovery and reentry are developed.</i>

1. Reentry and Recovery

During a declared emergency, a point will be reached at which the plant will be placed in a stable condition. With the understanding that this condition could be attained even though specific Emergency Action Levels are still exceeded, the Emergency Director will determine that there is no longer a need to keep the emergency organization in effect and to begin plant recovery.

The extent and nature of the corrective and protective measures and the extent of plant recovery will depend on the emergency conditions at hand and the status of plant areas and equipment. The general goals for plant recovery are:

- An orderly evaluation of the cause and effect of the emergency and the implementing of solutions to prevent the immediate recurrence of the incident.
- A planned approach for returning the plant to a stable condition by obtaining the appropriate manpower, materials, and equipment needed to accomplish that end.
- An evaluation of the radiation exposure records for all on-site emergency response personnel involved in the incident.
- A planned approach to ensure that radiation exposures and contamination control are in keeping with the ALARA program.

2. Recovery Organization

The recovery organization will be based on normal SONGS organizations and functions with the SONGS executive management position being responsible for directing all site activities.

3. Recovery Phase Notifications

Offsite authorities will be notified when recovery phase begins and ends.

4. Emergency Response Records

- Records associated with the emergency that are to be maintained include:
 - cause of the incident,
 - personnel and equipment involved,
 - extent of injury and damage (onsite and offsite) as a result of the incident,
 - locations of contamination with the final decontamination survey results,
 - corrective actions taken to terminate the emergency,
 - actions taken or planned to prevent a recurrence of the incident,
 - onsite and offsite assistance requested and received, and
 - any program changes resulting from a critique of emergency response activities.

N. Drill and Exercise Program

Planning Standard 50.47(b)(14) – Periodic exercises are (will be) conducted to evaluate major portions of emergency response capabilities, periodic drills are (will be) conducted to develop and maintain key skills, and deficiencies identified as a result of exercises or drills are (will be) corrected.

1. Biennial Exercise

SONGS conducts a biennial exercise in order to test the adequacy of timing and content of implementing procedures and methods; to test emergency equipment and communication networks; and to ensure that emergency personnel are familiar with their duties. Each exercise will be evaluated by station evaluators and possibly federal evaluators.

For alternating years, an integrated drill will be conducted for the purpose of testing, developing, and maintaining the proficiency of emergency responders.

The scenarios used for biennial exercise and drills will include, but not be limited to, the following:

- The basic objective(s) used in the exercise.
- The date(s), time period, place(s), and participating organizations.
- A time schedule of real and simulated initiating events.
- A narrative summary describing the conduct of the drill to include such items as simulated casualties, off-site fire assistance, rescue of personnel, use of protective clothing.

Critiques shall be scheduled at the conclusion of each exercise or drill to evaluate the performance of the organizations. The ability of personnel to self-evaluate weaknesses and identify areas for improvement is the key to successful ERO performance.

SONGS will allow observers from federal, state, and local governments, when requested, to observe scheduled exercises.

2. Other Drills

Drills are conducted to provide training and practice opportunities for ERO members. Equipment and proficiency drills may be performed as part of the biennial exercise, integrated drill or as an independent drill.

a. Communication Drills

Communications with state and local governments shall be tested monthly. These communication drills will include the aspect of understanding the content of messages and the operation of communications equipment.

b. Radiation Protection Drills

Radiation Protection Drills involving a response to, and analysis of, simulated airborne and liquid samples and direct radiation measurements within the plant are conducted semi-annually.

c. Medical Emergency Drills

A medical emergency drill, involving a simulated contaminated individual, and containing provisions for participation by local support services organizations (i.e., ambulance and support hospital) is conducted annually. The offsite portions of the medical drill may be performed as part of the required biennial exercise.

d. Augmentation Drills

Augmentation drills are performed to demonstrate the capability to activate the ERO in a timely manner.

e. Fire Drills

At least once each year a drill shall be conducted which involves participation of the Camp Pendleton Fire Department.

3. Critique and Evaluation

Exercise and drill performance objectives are evaluated against measurable demonstration criteria. As soon as possible following the conclusion of each exercise or drill, a critique, including participants and evaluators, is conducted to evaluate the ability of the ERO to implement the PDEP and its procedures.

A formal written critique report is prepared following an exercise or drill involving the evaluation of designated objectives. The report evaluates and documents the ability of the ERO to respond to a simulated emergency situation. The report will also contain reference to corrective action documents and recommendations.

4. Resolution of Findings

The critique process is used to identify areas of ERO performance and the Emergency Preparedness Program that require improvement. The Emergency Preparedness Manager is responsible for ensuring that items identified in the critique are correctly dispositioned and ensuring resolution of each item.

5. Records

Drill/exercise records and reports are to formulated and maintained. The reports should include a summary of the drill/exercise scenario, objectives, and response actions demonstrated during the drill/exercise. Critique findings from participants, controllers and evaluators should be entered in the Corrective Action program for evaluation.

O. Emergency Response Training

Planning Standard 50.47(b)(15) – Radiological emergency response training is provided to those who may be called on to assist in an emergency.

1. Assurance of Training of the Offsite Response Organizations

Offsite training is provided to support organizations that may be called upon to provide assistance in the event of an emergency. The following outlines the training provided to these organizations:

- a. Non-SONGS organizations that may provide specialized services during an emergency (e.g., local law enforcement, fire-fighting, rescue, medical services, transport of injured, etc.) are provided or formally offered annual training.

The training made available is designed to acquaint the participants with the special problems potentially encountered during a nuclear plant emergency, notification procedures and their expected roles. Organizations that must enter the site also receive site-specific emergency response training and are instructed as to the identity (by position and title) of those persons in the onsite organization who will control their support activities.

- b. Training of offsite emergency response organizations is described in their respective local agencies emergency plans, with support provided by SONGS as requested.

2. Functional Training of the ERO

All aspects of emergency preparedness training administration are specified in the station training program. This program identifies the level and the depth to which individuals are to be trained. Appropriate personnel will be trained in the areas such as radiation protection, respiratory protection, and first aid or its equivalent as part of the applicable training programs.

3. First Aid Response

Selected station personnel receive basic training in first aid.

4. Emergency Response Organization

The training for ERO personnel is developed from the position specific responsibilities as defined in this plan. Members of the ERO receive initial and annual refresher training.

On-shift emergency response personnel perform emergency response activities as an extension of their normal duties and are given emergency preparedness training as part of their formal department specific training.

New ERO personnel receive an initial overview course that familiarizes them with the PDEP by providing basic information in the following areas as well as specific information as delineated in the sections below:

- Planning Basis
- Emergency Classifications
- Emergency Response Organization and Responsibilities

- Call-out of Emergency Organization
- Emergency Response Facilities

a. Emergency Directors

Receive specialized training in the areas of:

- Notifications
- Emergency Classification
- Emergency Action Levels
- Mitigation and Protective Actions
- Emergency Exposure Control

b. Personnel Responsible for Accident Assessment

The skills and knowledge required to perform plant stabilization and mitigation are a normal function of operations specific positions. Subsequent stabilization and restoration is pursued utilizing station procedures. Operators receive routine training to ensure proficiency in this area.

Those positions that are called to assist operators with accident assessment, corrective actions, protective actions, and related activities receive appropriate training.

c. Radiological Assessment Personnel

In addition to the training received to qualify for their normal duties, Radiation Protection Personnel receive specific emergency response training on:

- Dose Assessment
- Basic Meteorology
- Transportation of Contaminated injured persons.

d. Police, Site Protection, and Fire Fighting Personnel

- 1) Local Police and Fire Fighting Personnel: The local Police and Fire Departments are invited to receive training as outlined in Section O.1.

Provisions are in place to provide "Just in Time Training" to untrained emergency workers responding to the site during a large-scale event. This includes training on radiological and plant specific hazards.

e. Repair and Damage Control Teams

Operations, Maintenance and Radiation Protection personnel are trained as part of their normal job specific duties to respond to both normal and abnormal plant operations.

f. Communications Personnel

Personnel using specialized communications equipment that is not part of their normal daily function receive training on the equipment. Personnel involved in notifications to offsite agencies receive training in the notification process.

5. **General, Initial, and Annual Training Program Maintenance**

Personnel assigned to work at the station receive initial and annual refresher training on general station procedures and policy. This training includes required actions to be taken if an emergency is declared at the station.

6. **Records**

- Records of training for SONGS ERO personnel are to be documented and maintained.
- Records for training offered and/or provided for the offsite responders is to be documented and maintained.

P. Responsibility for the Maintenance of the Planning Effort

Planning Standard 50.47(b)(16) – Responsibilities for plan development and review and for distribution of emergency plans are established, and planners are properly trained.

1. Emergency Preparedness Staff Training

The individual assigned the duties of the Emergency Preparedness Manager is to maintain an adequate knowledge of regulations, planning techniques and the latest applications of emergency equipment and supplies. This training may include:

- Training courses specific or related to emergency preparedness.
- Observation of or participation in drills and/or exercises at other stations.
- Participation in industry review and evaluation programs.
- Participation in regional or national emergency preparedness seminars, committees, workshops or forums.

2. Authority for the Emergency Preparedness Effort

Southern California Edison (SCE) is responsible for the safe and reliable maintenance of SONGS. The issuance and control of this plan and the activities associated with emergency preparedness at SONGS shall be the overall responsibility of station's Emergency Preparedness Manager.

3. Responsibility for Development and Maintenance of the Plan

The Emergency Preparedness Manager is responsible for the overall radiological emergency preparedness program associated with the station and to administer the program to ensure availability of resources in the event of an emergency.

Specific responsibilities include the following:

- Maintaining and updating this PDEP and associated procedures and documenting those reviews and required revisions
- Coordination of PDEP with other station programs and procedures
- Overseeing Emergency Preparedness Training Program and ensuring that proper records are maintained to document training and retaining of the ERO.
- Overseeing and documenting Emergency Preparedness Drill and Exercise Program
- Documenting and maintaining Emergency Preparedness Facilities and Equipment
- Documenting and maintaining Emergency Preparedness interfaces with offsite agencies.
- Performing and documenting appropriate evaluations of program and of classified emergency events
- Ensuring that onsite personnel and offsite response organizations are notified of updates to the Emergency Plan or procedures.
- Ensuring all Letters of Agreement are reviewed annually and updated as needed.

4. Emergency Plan and Agreement Revisions

The PDEP is reviewed on an annual basis. This review may also include applicable local agencies emergency response based on established agreements.

The annual Plan review/update includes required changes identified during audits, assessments, training, drills, and exercises.

Annually, each Letter of Agreement is reviewed and certified current in order to assure the availability of assistance from each supporting organization not already a party to the individual local agencies plans.

5. Emergency Plan Distribution

The PDEP volumes and implementing procedures are distributed on a controlled basis.

6. Supporting Emergency Response Plans

Other plans that support this PDEP are:

- NUREG-0728, US Nuclear Regulatory Commission, Concept of Operations: NRC Incident Response
- National Response Framework
- State of California Emergency Response Plan

7. Implementing and Supporting Procedures

Emergency Plan procedures provide specific instructions taken for each emergency classification including responsibilities, notification of offsite emergency organizations, and mobilization of the ERO. These procedures provide specific instructions to personnel for response to events and actions required to maintain the Emergency Planning program.

Appendix 2 of this plan contains a listing, by number and title, of those response and administrative/maintenance procedures that implement this PDEP.

8. Cross Reference to Planning Criteria

The PDEP is formatted in the same manner as NUREG-0654. The use of this format lends itself to uncomplicated comparison of the criteria set forth in NUREG-0654. Changes to these procedures are subject to evaluation under 10 CFR 50.54(q).

9. Audit/Assessment of the Emergency Preparedness Program

To meet the requirements of 10 CFR 50.54(t), SONGS coordinates an independent review the Emergency Preparedness Program to examine conformance with 10 CFR 50.47, 10 CFR 50.54, and 10 CFR 50 Appendix E. Included in the audit/assessment are the following:

- The PDEP and associated implementing procedures.
- The emergency preparedness training including drills and exercises as well as any activation of the PDEP since the last program audit.
- The readiness of the station Emergency Response Organization to perform its function.
- The readiness of facilities and equipment to perform as outlined in the PDEP and procedures.
- The interfaces between SONGS and local agencies pertaining to the overall Emergency Preparedness Program.

Results of this review are submitted to Corporate Management and the Chief Nuclear Officer. The Emergency Preparedness Manager ensures that any findings that deal with offsite interfaces are reviewed with the appropriate agencies. Written notification will be provided to local agencies of the performance of the audit and the availability of the audit records for review at SONGS facilities. Records of the review are maintained for at least five years.

10. Maintenance of Emergency Telephone Directory

Names and phone numbers of the Emergency Response Organization, support personnel and applicable offsite organizations shall be reviewed and updated at least quarterly.

Appendix 1: References

References consulted in the writing of this Permanently Defueled Emergency Plan are listed in this section. With exception of regulatory requirements, inclusion of material on this list does not imply adherence to all criteria or guidance stated in each individual reference.

1. 10 CFR 50.47, Emergency Plans
2. 10 CFR 50 Appendix E, Emergency Planning and Preparedness for Production and Utilization Facilities
3. 10 CFR 20, Standards for Protection Against Radiation
4. NUREG-0654, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants, Revision 1, November, 1980
5. NUREG-0728, Report to Congress: NRC Incident Response Plan
6. US NRC Regulatory Guide 1.101, Emergency Planning and Preparedness for Nuclear Power Reactors, revision 4, July, 2003
7. EPA 400-R-92-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents, October 1991
8. FEMA-Guidance Memorandum, MS-1, Medical Services
9. American Nuclear Insurers Bulletin #5B (1981), Accident Notification Procedures for Liability Insured
10. US NRC NSIR/DPR-ISG-02, Interim Staff Guidance, Emergency Planning Exemption Requests for Decommissioning Nuclear Power Plants

Appendix 2: Procedure Cross-Reference to Plan Sections

Procedure	Plan Sections Implemented
SO123-VII-ERO-1, Classification and Notifications	Section D & E
SO123-VII-ERO-2, Shift Manager / Emergency Director Checklist	Sections B, D, E, I, J & M
SO123-VII-ERO-3, Duty ERO Coordinator Checklist	Sections B, E, I, J & M
SO123-VII-ERO-4, Technical Coordinator Checklist	Section B & I
SO123-VII-ERO-5, Radiation Protection Coordinator Checklist	Section B, I, J & K
SO123-VII-ERO-6, Dose Assessment	Section J
SO123-VII-ADMIN-1, Emergency Preparedness Program Maintenance	Sections A, C, F, G, H, L, P
SO123-VII-ADMIN-2, Emergency Preparedness Program Training	Section O
SO123-VII-ADMIN-3, Emergency Preparedness Program Drill Development and Evaluation	Section N
SO123-VII-ADMIN-4, 50.54(q) Evaluations	Section P

Appendix 3: List of Letters of Agreements

<u>Organization/Agreement Type</u>	<u>Applicable To</u>
Saddleback Memorial Medical Center, San Clemente Campus	Medical Treatment
Mission Hospital	Medical Treatment
Air Methods Corporation	Transport of Injured Persons
Commanding Officer, Marine Corps Base, Camp Pendleton	Fire Fighting
Orange County Fire Authority	Fire Fighting

Appendix 4: Glossary of Terms and Acronyms

Accident Assessment	Accident assessment consists of a variety of actions taken to determine the nature, effects and severity of an accident.
Activation	"ERO Activation" is the process of initiating actions to notify and mobilize Emergency Response Organization (ERO) personnel following an event classification under the emergency plan.
ALARA	Acronym for "As Low as Reasonably Achievable," a basic concept of radiation protection that specifies that radioactive discharges from nuclear plants and radiation exposure to personnel be kept as far below regulation limits as feasible.
Annual	At least once per calendar year, January 1 to December 31.
Assembly/Accountability	A procedural or discretionary protective action taken for all persons within the Protected Area, which involves the gathering of personnel into pre-designated areas, and the subsequent verification that the location of these personnel is known.
Assembly Area	An area designated for the assembly of site personnel upon evacuation of the protected area.
Assessment Actions	Those actions taken during or after an emergency to obtain and process information that is necessary to make decisions to implement specific emergency measures.
Biennial	Occurring every two years
Classification	The classification of emergencies is divided into TWO (2) categories or conditions, covering the postulated spectrum of emergency situations.
Command and Control	When in Command and Control of the event, the designated individual has overall responsibility for SONGS's emergency response efforts.
Command Center	The operations center of the station from which the plant can be monitored.
Company, the	A term used to describe the holder of SONGS license.
Confinement Boundary	The outside surfaces of a storage cask containing spent fuel that act as a barrier between the radioactive substances contained within and the environment.
Corrective Action	Those emergency measures taken to lessen or terminate an emergency situation at or near the source of the problem, to prevent an uncontrolled release of radioactive material, or to reduce the magnitude of a release. Corrective actions include, equipment repair or shutdown, installation of emergency structures, fire fighting, repair, and damage control.

Appendix 4: Glossary of Terms and Acronyms

Damage Assessment	Estimates and descriptions of the nature and extent of damages resulting from an emergency or disaster; of actions that can be taken to prevent or mitigate further damage; and of assistance required in response and recovery efforts based on actual observations by qualified engineers and inspectors.
Decontamination	The reduction or removal of contaminated radioactive material from a structure, area, material, object, or person. Decontamination may be accomplished by (1) treating the surface so as to remove or decrease the contamination; (2) letting the material stand so that the radioactivity is decreased as a result of natural decay; and (3) covering the contamination.
Dose	A generic term that means absorbed dose, dose equivalent, effective dose equivalent, deep dose equivalent, committed dose equivalent, committed effective dose equivalent, or total effective dose equivalent.
Dose Projection	The calculated estimate of a radiation dose to individuals at a given location (normally off-site), determined from the source term/quantity of radioactive material (Q) released, and the appropriate meteorological dispersion parameters (X/Q).
Dose Rate	The amount of ionizing (or nuclear) radiation to which an individual would be exposed per unit of time. As it would apply to dose rate to a person, it is usually expressed as rems per hour or in submultiples of this unit, such as millirems per hour. The dose rate is commonly used to indicate the level of radioactivity in a contaminated area.
Drill	A supervised instruction period aimed at testing, developing and maintaining skills in a particular operation.
Emergency Action Levels (EALs)	A pre-determined, site-specific, observable threshold for a plant Initiating Condition that places the plant in a given emergency class. An EAL can be an instrument reading; an equipment status indicator; a measurable parameter (onsite or offsite); a discrete, observable event; or another phenomenon which, if it occurs, indicates entry into a particular emergency class.
Emergency Director	The Director of the facility in Command and Control of the event. The Shift Manager fills the role of Emergency Director throughout an event.
Emergency Operations Center (EOC)	A facility designed and equipped for effective coordination and control of emergency operations carried out within an organization's jurisdiction. The site from which civil government officials (municipal, county, State, and Federal) exercise direction and control in a civil defense emergency.
Emergency Response Personnel	SCE personnel who may be called upon during an emergency to perform duties to mitigate accident conditions at SONGS.

Appendix 4: Glossary of Terms and Acronyms

Emergency Preparedness	A state of readiness that provides reasonable assurance that adequate protective measures can and will be taken upon implementation of the emergency plan in the event of a radiological emergency.
Environmental Monitoring	The use of radiological instruments or sample collecting devices to measure and assess background radiation levels and/or the extent and magnitude of radiological contamination in the environment around the plant. This may be done in various stages such as normal operations, emergency, and recovery.
Evacuation	The urgent removal of people from an area to avoid or reduce high level, short-term exposure usually from activity release of radioactivity or other environmental hazard.
Exercise	A test of the integrated capability and a major portion of the basic elements existing within emergency preparedness plans and organizations. An exercise may involve participation of offsite organizations.
Hostile Action	An act toward the station or its personnel that includes the use of violent force to destroy equipment, takes hostages, and/or intimidate the licensees to achieve an end. This includes attack by air, land, or water using guns, explosives, projectiles, vehicles, or other devices used to deliver destructive force. Other acts that satisfy the overall intent may be included. This should not be construed to include acts of civil disobedience or felonious acts that are not part of a concerted attack on the station.
Initiating Condition	A predetermined condition where either the potential exists for an emergency or such an emergency has occurred.
Integrated Drill	A training activity that incorporates multiple demonstration requirements to be conducted in connection with one another. An example could be including a contaminated injured person with a loss of spent fuel coolant accident.
Local agencies	An all-inclusive term referring to county and municipal governments.
Meteorological Instrumentation	A device mounted in a location that will provide the Command Center with local wind speed and direction to assist in the assessment and decision-making to implement onsite protective actions.
Monthly	At least once per calendar month.
Offsite	The area around a nuclear generating station that lies outside the "Owner Controlled Area".
Onsite	The area around the station that lies within the station's "Owner Controlled Area".

Appendix 4: Glossary of Terms and Acronyms

Owner Controlled Area	SCE SONGS controlled property, to include facilities and parking lots located on the west side of the Interstate 5 freeway, extending westward from Old Highway 101 to the median high-tide line, bordered on the north and south by the State Park Beach.
Personnel Monitoring	The determination of the degree of radioactive contamination on individuals, using standard survey meters, and/or the determination of dosage received by means of dosimetry devices.
Radiation Monitoring System	An instrumentation system designed to detect and alarm abnormal radiation levels in spent fuel pool area and effluent streams.
Projected Dose	That calculated dose that some individuals in the population group may receive if no protective actions are implemented. Projected doses are calculated to establish an upper limit boundary.
Protected Area	That onsite area within the security boundary as defined in the station's Security Plan.
Protective Action	Those emergency measures taken for the purpose of preventing or minimizing radiological exposures to affected population groups.
Quarterly	At least once in each of the following four periods: January 1 through March 31; April 1 through June 30; July 1 through September 30; October 1 through December 31.
Radiological Release	A 'Release in Progress' is defined as <u>ANY</u> radioactive release that is a result of, or associated with, the emergency event. Normal off-gas or plant vent releases that occur during operations or shutdown are not considered to be a release unless the value exceeds an alarm setpoint.
Safety System	A system required for cooling the spent fuel pool of in the permanently defueled mode of operation.
Semi-Annual	At least once in each of the following periods: January 1 through June 30; July 1 through December 31.
Site Evacuation	The evacuation of non-essential personnel from the plant site.
Source Term	Radioisotope inventory of spent fuel, or amount of radioisotope released to the environment, often as a function of time.
Staffed Warning Points	Offsite agency locations that are staffed 24 hours a day. Such as 911 centers or other staffed watch locations.
Threshold Value	Measurable, observable detailed conditions which must be satisfied to determine an EAL applicability.
Total Effective Dose Equivalent (TEDE)	The sum of the deep dose equivalent (for external exposure) and the committed effective dose equivalent (for internal exposure) and 4 days of deposition exposure.

Appendix 4: Glossary of Terms and Acronyms

Unrestricted Area	Any area to which access is not controlled for protecting individuals from exposure to radiation and radioactive materials, or other industrial hazards.
Vehicle Barrier System (VBS)	Vehicle control measures (passive or active) used to protect against the malevolent use of a land vehicle. The VBS consists of both active and passive components, terrain features, man-made structural features, and vehicle access checkpoints.
Weekly	At least once per calendar week: Sunday through Saturday.

Any abbreviation followed by a lower case 's' denotes the plural form of the term.

Appendix 4: Glossary of Terms and Acronyms**ACRONYMS**

ARM	Area Radiation Monitor
CFR	Code of Federal Regulations
CC	Command Center
DHS	Department of Homeland Security
DOE	Department of Energy
DOT	Department of Transportation
DPH	Department of Public Health
EAL	Emergency Action Level
EAS	Emergency Alerting System
ENS	Emergency Notification System (NRC)
EOC	Emergency Operations (or Operating) Center
EPA	Environmental Protection Agency
EPZ	Emergency Planning Zone
HPN	Health Physics Network (NRC)
ISFSI	Independent Spent Fuel Storage Installation
NRC	Nuclear Regulatory Commission
OES	California Office of Emergency Services
PAG	Protective Action Guide
PDEP	Permanently Defueled Emergency Plan
RAC	Regional Advisory Committee (FEMA)
SCBA	Self Contained Breathing Apparatus
VBS	Vehicle Barrier System

Enclosure 3

**SONGS PDEP Review Against
NSIR/DPR-ISG-02**

The Table presented in this Enclosure is a comparison between the draft guidance in NRC/DPR-ISG-02, "Interim Staff Guidance, Emergency Planning Exemption Requests for Decommissioning Nuclear Power Plants," and the proposed San Onofre Nuclear Generating Station (SONGS) Permanently Defueled Emergency Plan (PDEP). Specifically, Attachment 1 of NRC/DPR-ISG-02 provides draft guidance on the appropriate content for a permanently defueled emergency plan.

Although the SONGS proposed PDEP contains information similar to that described in NRC/DPR-ISG-02, Attachment 1, the SONGS proposed PDEP was prepared in the format of a NUREG-0654 Emergency Plan for an Operating Reactor. The Table below provides an index between the elements of a permanently defueled emergency plan as described in NRC/DPR-ISG-02, Attachment 1, and the relevant discussion in the SONGS proposed PDEP. Where differences are indicated, a justification is provided.

In some cases, the draft guidance in NRC/DPR-ISG-02, Attachment 1, describes emergency plan content in greater detail than is typically associated with an operating emergency plan. SCE intends in most cases to incorporate the provisions of NRC/DPR-ISG-02, Attachment 1, in the PDEP. As noted in the table, however, SCE intends to describe some of the details of the emergency plan content in Emergency Plan Implementing Procedures or other lower-tier Emergency Plan documents.

SONGS PDEP Review against NSIR/DPR-ISG-02	
ISG Guidance	SONGS PDEP
1.0 Emergency Response Equipment and Facilities Applicable Regulation(s): 10 CFR 50.47(b)(8) and (9), Appendix E to 10 CFR Part 50, Section IV.E	N/A
1.1. Background and Discussion Operating power reactor sites require separate facilities for functions of evaluation and coordination of activities associated with the emergency, technical support, plant operation, assembly of logistical support personnel, and dissemination of information. When a site enters decommissioning, most of the plant systems are no longer required for operation or for mitigation of an accident. Most of the design basis accidents are no longer credible. The staff required to support the site is also much smaller. Facility functions may also be combined, and therefore, physical locations may be eliminated.	N/A
1.2. Guidance The emergency plan should describe the onsite equipment and facilities designated for use during emergencies. The plan should describe the principal and alternate locations from which emergency control and assessment activities will occur. At least one location should be habitable during any emergency.	Section H.1. Provides the description of the Command Center. Its location has not been designated. The relocation of the Command Center is determined by the Emergency Director due to security conditions or hazardous conditions. A fixed alternate facility has not been designated.
The emergency plan should include the means for identifying a command center to be used in an emergency. The criteria for evacuating a command center and re-establishing control from an alternate location should also be described. The plan should identify one or more locations from which licensee emergency workers would be dispatched to perform radiation surveys, damage assessment, emergency repair, or other mitigating tasks.	Section H.1 The Command Center location will be designated by Station Management. The Emergency Director (ED) has procedural guidance on relocation of the Command Center if and when it is necessary.

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ISG Guidance	SONGS PDEP
<p>The protective equipment and supplies available to emergency response personnel should be described. Types of equipment and supplies may include:</p> <ul style="list-style-type: none"> • individual respiratory equipment, including self-contained breathing apparatus • protective clothing • firefighting equipment and gear • supplemental lighting • medical supplies • contamination control and decontamination equipment • communications equipment • radiation detection equipment, including radiation meters, air samplers, dosimeters • hazardous material detection equipment • potassium iodide 	<p>Note: Although emergency response equipment is discussed in the PDEP, the specifics of locations and quantities are provided in support procedures. Sections H.5 and H.10, The protective equipment and supplies available to the ERO are described in supporting procedures.</p> <p>Section K.6.a describes the availability of SCBAs and respiratory protection apparatus for the ERO.</p> <p>Section K.6.b Provides information on protective clothing for the ERO</p> <p>Section O.4.d Firefighting equipment and gear are provided by offsite fire response agencies</p> <p>Section H.10 Supplemental lighting</p> <p>Section L.2 Medical supplies</p> <p>Section H.5, H.10 and K.4.b Contamination control and decontamination equipment</p> <p>Section H.10 Portable communications equipment</p> <p>Section H.5 and I.7 Radiation detection equipment</p> <p>Section I.9 addresses Air samplers</p> <p>Section K.3 addresses Dosimeters</p> <p>Section H.10 – General Use Emergency Equipment</p> <p>No potassium iodide (KI) is maintained or provided to the ERO as the radioiodines are no longer present.</p>
<p>The emergency plan should include criteria for issuing respiratory equipment, locations of emergency equipment and supplies, means for distributing these items and criteria for dispensing potassium iodide, if required.</p>	<p>KI is no longer needed. Radioiodines have decayed.</p> <p>Section K.6.a – Individual Respiratory Protection.</p>
<p>The emergency plan should also include inventory lists indicating the emergency equipment and supplies provided at specified locations. The plan should describe the primary and alternate onsite and offsite communication systems that would be used to transmit and receive information throughout the emergency. A backup means of offsite communication to a commercial telephone should be provided for notification of emergencies and requests for assistance.</p>	<p>Equipment listing is proceduralized in EIPs and not maintained in the PDEP.</p>
<p>2.0 Staffing and Communication Applicable Regulation(s): 10 CFR 50.47(b)(1), (2), (5) and (6), Appendix E to 10 CFR Part 50, Sections IV.A, C and D</p>	<p>N/A</p>
<p>2.1. Background and Discussion: Table B-1 in NUREG-0654/FEMA-REP-1, Revision 1 describes the minimum emergency response staffing requirements for nuclear power plant licensed per 10 CFR Part 50 and 10 CFR Part 52.</p>	<p>N/A</p>

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ISG Guidance	SONGS PDEP
<p>The staff recognizes that due to the limited number, lower possible frequency and relative magnitude of events at a defueled facility, fewer staff may be required during decommissioning. The major functional areas remain the same, but the major tasks are different and the time available to take mitigating actions changes significantly. Defueled Technical Specifications typically will define the onshift operating staff at a defueled decommissioning site as two positions: a certified fuel handler and an operator or technician. The major responsibility of the onshift staff, while there is fuel in the SFP, is to maintain SFP cooling. Performing the role of an Emergency Director should be within the qualifications and capabilities of the designated onshift staff member.</p>	<p>Section B.1 The Emergency Director position is assumed primarily by the Shift Manager or by the Plant Operator if the Shift Manager is not able to perform the function.</p>
<p>2.2. Guidance 2.2.1 Responsibilities The emergency plan should describe the emergency organization to be activated onsite for possible events, and offsite augmentation and support. The plan should delineate the authorities and responsibilities of key positions and groups, and identify the communication chain for notifying and mobilizing personnel during normal and non-working hours. Personnel with the responsibility for event classification, onsite protective action decisions, and prompt notification of State and local government authorities and the NRC should be identified.</p>	<p>Section A.1.b provides the SONGS Concept of Operations for an emergency.</p> <p>Section B.4 Provides the duties of the Emergency Director.</p> <p>Section B (Table B-1) describes the SONGS ERO and the shift ERO Positions.</p>
<p>2.2.2 Decommissioning Facility Organization The emergency plan should provide a brief description of the normal (day-to-day) facility organization and identify by position those with responsibility to declare an emergency and to initiate the appropriate response. Personnel responsible for maintaining the emergency plan and emergency response procedures should be identified.</p>	<p>Section B.1 addresses the normal shift staffing and the relationship between the normal and the emergency response functions.</p> <p>Section B.4 Provides the duties of the Emergency Director including responsibility for event declaration and initiation of event response.</p> <p>Section P3 designates the position responsible for the development and the maintenance of the PDEP and the supporting procedures.</p>

SONGS PDEP Review against NSIR/DPR-ISG-02	
ISG Guidance	SONGS PDEP
<p>2.2.3 Onsite Emergency Response Organization The emergency plan should identify the onsite emergency response organization for the facility, including during periods such as holidays, weekends, and extended periods when normal operations are not being conducted. Organizational charts and tables should be used when appropriate. If the organization is activated in phases, the plan should describe the base organization and each additional component that may be activated to augment the organization. Typically, a minimum staff to augment the minimum onshift staff is manned within an hour of declaration of an Alert with a goal of total augmentation within two hours. The plan should clearly state the minimum level of staffing needed to effectively implement the plan for each period or phase described.</p>	<p>Section B.1 provides the onshift ERO assignments.</p> <p>Section B.5 addresses the augmentation of the ERO with an augmentation goal of two hours after declaration of an Alert.</p> <p>Table B-1 clearly states the minimum staffing for the ERO.</p>
<p>2.2.4 Direction and Coordination The emergency plan should designate the position of the person, and alternate(s), who has principal responsibility for implementing and directing the emergency response. This person's duties and authorities would include:</p> <ul style="list-style-type: none"> • control of the situation • initial classification, escalation or termination of the emergency condition • event notification • coordination of the staff and offsite personnel who augment the staff • communication with parties requesting information regarding the event • onsite protective measure decision-making • request of support from offsite agencies 	<p>Section B.1 defines the onshift ERO</p> <p>Section B.4 provides the duties of the Emergency Director.</p>
<p>The emergency plan should also describe this person's authority to delegate responsibilities and the individuals who may be delegated certain emergency responsibilities.</p>	<p>Section B.4 provides authority to delegate responsibilities listed.</p>

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ISG Guidance	SONGS PDEP
<p>2.2.5 Onsite Staff Emergency Assignments The emergency plan should specify the organizational group or groups assigned to the functional areas of emergency activity listed below. The plan should also describe strategies for staffing these positions if the emergency lasts for an extended period of time. The duties, authorities, and interface with other groups and offsite assistance should be described. The organizational groups should provide support in the following areas:</p> <ul style="list-style-type: none"> • facility systems operations, • fire control, • onsite protective measures, including personnel evacuation and accountability, • search and rescue operations, • first aid, • communications, • onsite radiological survey and assessment, • personnel and facility decontamination, • facility security and access control, • facility repair and damage control, • post-event assessment, • record keeping, • media contact, and • criticality safety assessment 	<p>Section B.4 Emergency Director - facility systems operations, Section B.5.a Technical Coordinator - facility systems operations, Section A.1.a.1)c) Marine Corps, Camp Pendleton – fire control Section B.4 Emergency Director - onsite protective measures, including personnel evacuation and accountability, Section B.5.a Technical Coordinator - search and rescue operations, Section B.5.d RP Techs - first aid. Section B.4 Emergency Director & Plant Operator - communications, Section B.5.c onsite radiological survey and assessment, Section B.5.d RP Techs - personnel and facility decontamination, Section B.1. Emergency Director & Plant Operator - facility security and access control, Section B.4. Emergency Director & Plant Operator -facility repair and damage control, Section B.4. Emergency Director & Plant Operator - post-event assessment, Section B.5.b., B.5.c., B.5.d., all response positions conduct a record of their response actions keeping. Section G media contact Section B.5.a Criticality safety assessment – not needed as the capabilities do not exist.</p>

SONGS PDEP Review against NSIR/DPR-ISG-02	
ISG Guidance	SONGS PDEP
<p>2.2.6 Emergency Response Records The emergency plan should describe the assignment of responsibility for reporting and recording incidents of abnormal operation, equipment failure, and accidents that led to a facility emergency. Decommissioning records shall be maintained until the license is terminated as required by 10 CFR 50.75(g). Records of an emergency or incident to be maintained should include the following:</p> <ul style="list-style-type: none"> • cause of the incident, • personnel and equipment involved, • extent of injury and damage (onsite and offsite) as a result of the incident, • locations of contamination with the final decontamination survey results, • corrective actions taken to terminate the emergency, • actions taken or planned to prevent a recurrence of the incident, • onsite and offsite assistance requested and received, and • any program changes resulting from a critique of emergency response activities. 	<p>Section M.4 Emergency Response Records</p> <p>Section D.1. a & D.1.b address post accident report summaries to the NRC.</p>
<p>The emergency plan should provide a description of the records associated with emergency plan maintenance that will be kept. These should include the following:</p> <ul style="list-style-type: none"> • training and retraining (including lesson plans and test questions), • drills, exercises, and related critiques, • inventory and locations of emergency equipment and supplies, • maintenance, surveillance, calibration, and testing of emergency equipment and supplies, • letters of agreement with offsite support organizations, • reviews and updates of the emergency plan submitted per 10 CFR Part 50.54(q), and • notification of onsite personnel and offsite response organizations affected by an update of the plan or its implementing procedures 	<p>Section P.3 training and retraining (lesson plans and test questions are maintained in the ERO Training Plan)</p> <p>Section P.3 drills, exercises, and related critiques</p> <p>Section H.9 inventory and locations of emergency equipment and supplies in accordance with site procedures,</p> <p>Section H.9 maintenance, surveillance, calibration, and testing of emergency equipment and supplies in accordance with site procedures,</p> <p>Section P.3 letters of agreement with offsite support organizations,</p> <p>Section P.8 reviews and updates of the emergency plan submitted per 10 CFR Part 50.54(q),</p> <p>Section P.3 notification of onsite personnel and offsite response organizations affected by an update of the plan or its implementing procedures.</p>

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ISG Guidance	SONGS PDEP
<p>The emergency plan should include provisions for an annual review and audit of the emergency preparedness program to ensure the program remains adequate. Elements of the audit should include a review of the following:</p> <ul style="list-style-type: none"> • emergency plan and associated procedures, • emergency response training activities, • records of emergency facilities, equipment, and supplies, • records associated with offsite response agencies interface (such as training and letters of agreement), • exercises, drills, communications, and inventory checks, and • activation of the emergency plan since the last audit 	<p>Section P.9 Addresses audit/assessment activity.</p>
<p>2.2.7 Coordination with Offsite Response Organizations</p> <p>The emergency plan should identify the principal State agency and other government (local, county, State, and Federal) agencies or organizations having authority for radiological or other hazardous material emergencies. The agencies' and/or organization's location and specific response capabilities in terms of personnel and resources should be described. The plan should include a description of the onsite and offsite services that support emergency response operations, including the following:</p> <ul style="list-style-type: none"> • decontamination facilities, • medical treatment facilities, • first aid personnel, • fire fighters, • law enforcement assistance, and • ambulance services 	<p>Section A.1.a for the principal State agency and other government (local, county, State, and Federal) agencies or organizations having authority for radiological or other hazardous material emergencies.</p> <p>Section K.4.b general overview of decontamination facilities are addressed including temporary decontamination facilities.</p> <p>Section L.3 medical treatment facilities,</p> <p>Section A.1.a.1) c) first aid personnel,</p> <p>Section A.1.a.1) c) fire fighters,</p> <p>Section A.1.a.1) d) law enforcement assistance, and</p> <p>Section A.1.a.1) c) ambulance services</p>

SONGS PDEP Review against NSIR/DPR-ISG-02	
ISG Guidance	SONGS PDEP
<p>2.2.8 Notification and Coordination The emergency plan should describe the means used to activate the emergency response organization for each class of emergency on a 24-hours per day/7-days per week basis. The plan should describe the means provided to detect and notify the licensee's onshift staff of any abnormal conditions or of any danger to safe operations (e.g., a severe weather warning). The means to promptly notify State and local government authorities and the NRC should be described. The ability to request offsite assistance, including medical assistance for the treatment of contaminated injured onsite workers, should also be described. The plan should include the commitment to notify the NRC Operations Center immediately after notification of State and local government authorities but no later than one hour after an emergency is declared.</p>	<p>Section D.1.a & b</p> <ul style="list-style-type: none"> • Notify Onsite ERO • Notify State and local governments • Notify the NRC Operations Center <p>Section E.2.a SONGS ERO notification</p> <p>Section E.2 c for medical, rescue, and fire fighting support</p>
<p>2.2.9 Information to be Communicated The emergency plan should describe the type of information to be communicated to State and local government authorities and the NRC. The information should be clear, concise and should avoid technical terms and jargon. The types of information to be communicated should include the status of the facility, if a release of radioactive material is occurring or could occur, and dose rate projections. A standard reporting checklist should be included in the plan to facilitate timely notification for each postulated accident.</p>	<p>Section E.3 for initial notifications</p> <p>Section E.4 for follow-up information</p>
<p>3.0 Mitigation of Consequences Applicable Regulation(s): 10 CFR 50.47(b)(3), (8) and (10), Appendix E to 10 CFR Part 50, Section IV.B</p>	N/A

SONGS PDEP Review against NSIR/DPR-ISG-02	
ISG Guidance	SONGS PDEP
<p>3.1. Background and Discussion</p> <p>Sites which hold spent fuel susceptible to zirconium fires have been exempted from some EP regulations based on their analysis showing the ability to perform actions to prevent such events or to take offsite protective actions were necessary. A site-specific SFP analysis should show that there is sufficient time from the loss of SFP inventory until the onset of a zirconium fire to take the actions to mitigate the inventory loss and prevent a zirconium fire and to take offsite protective actions. Specifically, a time of at least ten hours from the loss of SFP inventory, without air cooling, to a temperature of 900 degrees C should be one conclusion from this site specific analysis. The emergency plan should describe the equipment, personnel, resources, such as water supplies, procedures and strategies in place for movement of any necessary portable equipment, initial and continuing training, that will be relied upon for prevention of a zirconium fire in the SFP. These mitigative strategies may have been developed as part of a response to or the result of NRC Order on Mitigative Strategies (EA-12-049). A time estimate for completing necessary actions to preclude the zirconium fire should be made.</p>	N/A
<p>3.2. Guidance</p> <p>3.2.1 Limiting Actions</p> <p>The emergency plan should describe the means and equipment provided for limiting the consequences of each type of accident identified in the plan. The plan should address the actions and systems in place to reduce the magnitude and/or reduce the effect of a radioactive or hazardous material release that has occurred. The plan should include actions to be taken to limit and mitigate the consequences to the public and workers. Means for limiting releases could include the following:</p> <ul style="list-style-type: none"> • sprinkler systems and other fire suppression systems • fire detection systems • firefighting capabilities • filtration or holdup systems • use of water sprays on airborne releases of radioactive material • automatic shut-off of process or ventilation flow • use of fire-resistant building materials 	<p>The Plan does not describe the means and equipment provided for limiting the consequences of each type of accident identified in the Plan. This will be addressed in mitigating strategies and procedures.</p>
<p>If portable equipment is used to prevent or mitigate events, the emergency plan should describe the procedures, storage and maintainability of that equipment.</p>	<p>This will be addressed in mitigating strategies and procedures.</p>

SONGS PDEP Review against NSIR/DPR-ISG-02	
ISG Guidance	SONGS PDEP
Based upon the type of emergency, the emergency plan should describe the criteria for the shutdown of systems or the facility and any steps to be taken to ensure a safe, orderly shutdown of fuel handling operations and the approximate time required to complete the shutdown.	The Plan does not address these actions. – AOPs or EOPs will provide a describe the criteria for the shutdown of systems for the facility and any steps to be taken to ensure a safe, orderly shutdown of fuel handling operations ass well as the approximate time required to complete the shutdown.
<p>3.2.2 Onsite Protective Actions</p> <p>The emergency plan should describe the nature of onsite protective actions, criteria for implementing those actions, the areas involved, and the procedures for notification to potentially affected persons. The plan should allow for timely relocation of onsite persons, effective use of protective equipment and supplies, and use of appropriate contamination control measures. The plan should describe the means for controlling and/or minimizing radiological exposures for personnel onsite, and any personnel expected to arrive onsite. The onsite exposure guidelines should be consistent with the EPA PAGs to be used in actions to control fires, stop releases, or protect the facilities. Exposure guidelines should be provided for:</p> <ul style="list-style-type: none"> • search and rescue • removing injured persons • undertaking mitigating actions • performing assessment actions • providing onsite first aid • performing personnel decontamination • providing ambulance service or offsite medical treatment 	<p>Section J.1 onsite protective actions</p> <p>Section K for controlling and/or minimizing radiological exposures for personnel onsite, and any personnel expected to arrive onsite.</p> <p>Section K.1 for exposure guidelines.</p>

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ISG Guidance	SONGS PDEP
<p>The emergency plan should include methods for onsite personnel evacuation and accountability. This could include:</p> <ul style="list-style-type: none"> • criteria for ordering a site evacuation • means and timely notification of onsite persons impacted • provisions for determining and maintaining accountability of assembled and evacuated personnel, and for identifying and determining the locations of personnel that were not evacuated • search and rescue • locations of onsite and offsite assembly areas • evacuation routes and means for transporting onsite personnel (e.g., privately owned vehicles, buses, company vehicles) • monitoring of evacuees for contamination and control measures if contamination is found • criteria for command center and assembly area evacuation and re-establishment at an alternate location • means for evacuating and treating onsite injured personnel, including potentially contaminated personnel 	<p>Section J.1 addresses evacuation. Specific guidance will be described in EIPs. The PDEP lists the topics covered in the procedure:</p> <ul style="list-style-type: none"> • criteria for ordering a site evacuation • means and timely notification of onsite persons impacted • provisions for determining and maintaining accountability of assembled and evacuated personnel, and for identifying and determining the locations of personnel that were not evacuated • locations of onsite and offsite assembly areas • evacuation routes and means for transporting onsite personnel (e.g., privately owned vehicles, buses, company vehicles) • monitoring of evacuees for contamination and control measures if contamination is found • criteria for command center and assembly area evacuation and re-establishment at an alternate location • means for evacuating and treating onsite injured personnel, including potentially contaminated personnel
<p>The emergency plan should describe provisions for preventing further spread of radioactive materials and for minimizing personnel exposure from radioactive materials. The plan should specify action levels for decontaminating personnel. The plan should describe provisions for determining the doses and dose commitments from external radiation exposure and internally deposited radioactive material received by emergency response personnel, including personnel from offsite emergency response organizations (e.g. fire, medical, police).</p>	<p>Section K.4 Contamination Control</p> <p>Section K.3 Exposure control</p>

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ISG Guidance	SONGS PDEP
<p>The emergency plan should describe arrangements made for hospital and medical services, both primary and backup, and their capabilities to evaluate and treat contaminated, injured persons, and injuries involving radiation, radioactive materials, and other hazardous materials used in conjunction with radioactive materials. The medical facility description should include capabilities to control any contamination that may be associated with the physical injuries. The plan should specify how injured personnel who are potentially contaminated will be transported to offsite medical facilities. The plan should describe how chemicals or hazardous materials stored onsite may impact transporting injured personnel. The commitment to provide ambulance and hospital personnel with health physics support should be included.</p>	<p>Section L.3. - Medical Facility Services</p> <p>Section L.4. – Medical Transportation</p>
<p>3.2.3 Assessment of Releases The emergency plan should discuss the actions to be taken to determine the extent of the problem and to decide what corrective actions may be required for each class of emergency. This should include the types and methods of onsite and offsite sampling and monitoring in case of a release of radioactive or other hazardous material. The provisions for projection of offsite radiation exposures should be described.</p>	<p>Section I.3 Source term determination</p> <p>Section I.4 Effluent monitoring and dose projection Procedures will be developed for projection of offsite radiation exposures</p>
<p>4.0 Emergency Action Levels Applicable Regulation(s): 10 CFR 50.47(b)(4), Appendix E to 10 CFR Part 50, Section IV.B, 10 CFR 72.32.a.</p>	<p>N/A</p>

SONGS PDEP Review against NSIR/DPR-ISG-02	
ISG Guidance	SONGS PDEP
<p>4.1. Background and Discussion</p> <p>Recognition Category Permanently Defueled (PD) of the Nuclear Energy Institute (NEI) document NEI 99-01 Revision 6, "Methodology for Development of Emergency Action Levels," provides a stand-alone set of initiating conditions (ICs) and emergency action levels (EALs) for a permanently defueled NPP to consider for use in developing a site-specific emergency classification scheme. For development, it was assumed that the plant had operated under a 10 CFR Part 50 license and that the operating company has permanently ceased plant operations. Further, the licensee intends to store the spent fuel within the plant for some period of time. When in a permanently defueled condition, the licensee will typically receive approval from the NRC for exemption from specific emergency planning requirements. These exemptions reflect the lower radiological source term and risks associated with spent fuel pool storage relative to an operating power reactor. Source terms and accident analyses associated with plausible accidents are documented in the station's Final Safety Analysis Report (FSAR), as updated. As a result, each licensee will need to develop a site-specific emergency classification scheme using the NRC-approved exemptions, revised source terms, and revised accident analyses as documented in the station's FSAR.</p>	<p>Section D.1 SONGS utilizes a classification methodology endorsed by the NRC in Regulatory Guide 1.101 for the development of initiating conditions and emergency action levels.</p> <p>Section D.2 Emergency Action Level Technical Bases based on NEI 99-01 rev 6, Section 8 (for ISFSI) and Appendix C (for permanently defueled EALs).</p>
<p>Recognition Category PD uses the same emergency classification levels (ECLs) as operating reactors; however, the source term and accident analyses typically limit the ECLs to an Unusual Event and Alert. The Unusual Event ICs provide for an increased awareness of abnormal conditions while the Alert ICs are specific to actual or potential impacts to spent fuel. The source terms and release motive forces associated with a permanently defueled plant would not be sufficient to require declaration of a Site Area Emergency or General Emergency unless a zirconium fire occurs.</p>	<p>Section D.1 - Emergency Classification System</p>
<p>A permanently defueled station is essentially a spent fuel storage facility with the spent fuel stored in a pool of water that serves as both a cooling medium (i.e., removal of decay heat) and a shield from direct radiation. These primary functions of the spent fuel storage pool are the focus of the Recognition Category PD ICs and EALs. Radiological effluent IC and EALs were included to provide a basis for classifying events that cannot be readily classified based on an observable event or plant conditions alone.</p>	<p>Section D.1 - Emergency Classification System</p>

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ISG Guidance	SONGS PDEP
Appropriate ICs and EALs from the other Recognition Categories of NEI 99-01 were modified and included in Recognition Category PD to address a spectrum of the events that may affect a spent fuel pool. The Recognition Category PD ICs and EALs reflect the relevant guidance in this document (e.g., the importance of avoiding both over-classification and under-classification). Nonetheless, each licensee will need to develop its emergency classification scheme using the NRC-approved exemptions, and the source terms and accident analyses specific to the licensee. Security-related events will also need to be considered and documented in the licensee Physical Security Plan and written implementing procedures.	Section D.2 - SONGS has developed site-specific EALs based on NEI 99-01, Revision 6. The proposed EALs were submitted to the NRC under separate cover letter.
Selected guidance in NEI 99-01 is applicable to licensees electing to use their 10 CFR Part 50 emergency plan to fulfill the requirements of 10 CFR 72.32 for a stand-alone Independent Spent Fuel Storage Installation (ISFSI). The emergency classification levels applicable to an ISFSI are consistent with the requirements of 10 CFR Part 50 and the guidance in NUREG 0654/FEMA-REP-1. The initiating conditions germane to a 10 CFR 72.32 emergency plan (as described in NUREG-1567) are subsumed within the classification scheme for a 10 CFR 50.47 emergency plan.	Section D.2 - SONGS has developed site-specific EALs based on NEI 99-01, Revision 6. The proposed EALs were submitted to the NRC under separate cover letter and include ICs and EALs for the SONGS ISFSI.
The generic ICs and EALs for an ISFSI are presented in NEI 99-01, ISFSI ICs/EALs. IC E-HU1 covers the spectrum of credible natural and man-made events included within the scope of an ISFSI design. This IC is not applicable to installations or facilities that may process and/or repackage spent fuel (e.g., a Monitored Retrievable Storage Facility (MRS) or an ISFSI at a spent fuel processing facility). In addition, appropriate aspects of IC HU1 and IC HA1 should also be included to address security events directed against an ISFSI.	Section D.1- SONGS has developed site-specific EALs based on NEI 99-01, Revision 6. The proposed EALs were submitted to the NRC under separate cover letter and include ICs and EALs for the SONGS ISFSI.

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<p>4.2. Guidance</p> <p>4.2.1 Unusual Event The emergency plan should identify events which could lead to initiation of an Unusual Event. Initiating events may include:</p> <ul style="list-style-type: none"> • release of gaseous or liquid radioactivity greater than 2 times the (site-specific effluent release controlling document) limits for 60 minutes or longer • unplanned rise in plant radiation levels • unplanned spent fuel pool temperature rise • confirmed security condition or threat • hazardous event affecting safety system equipment necessary for spent fuel cooling • other conditions exist which in the judgment of the Emergency Director warrant declaration of an Unusual Event 	<p>Section D.2 - The events that result in a Notification of Unusual Event are described in EIPs and the SONGS Emergency Action Level Technical Basis document.</p>
<p>4.2.2 Alert The emergency plan should identify events which could lead to initiation of an Alert. Initiating events may include:</p> <ul style="list-style-type: none"> • release of gaseous or liquid radioactivity resulting in offsite dose greater than 10 mrem total effective dose equivalent (TEDE) or 50 mrem thyroid committed dose equivalent (CDE) • unplanned rise in plant radiation levels that impedes plant access required to maintain spent fuel integrity • hostile action within the Owner Controlled Area or airborne attack threat within 30 minutes • other conditions exist which in the judgment of the Emergency Director warrant declaration of an Alert 	<p>Section D.1- The events that result in a Notification of Unusual Event are described in EIPs and the SONGS Emergency Action Level Technical Basis document.</p>
<p>4.2.3 Independent Spent Fuel Storage Installation If the licensee elects to transfer the spent fuel and store it in an ISFSI, the emergency plan should also identify events for the ISFSI which could lead to initiation of an Unusual Event. Initiating events may include:</p> <ul style="list-style-type: none"> • Damage to a loaded cask confinement boundary 	<p>Section D.2 - SONGS has developed site-specific EALs based on NEI 99-01, Revision 6. The proposed EALs were submitted to the NRC under separate cover letter and include ICs and EALs for the SONGS ISFSI.</p>

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ISG Guidance	SONGS PDEP
<p>5.0 Exercises</p> <p>The emergency plan should describe the provisions for periodic drills and exercises. Communications checks with offsite agencies, and radiological/health physics, medical, and fire drills should be performed at the interval established by 10 CFR 72.32(a) or (b). The biennial onsite exercise should test the effectiveness of the personnel, plan and procedures, and readiness of facilities, equipment, supplies and instrumentation. Offsite response organizations should be invited to participate, however, participation is not required. The plan should describe the responsibility for developing the exercise accident scenario, requirements for non-participating observers to evaluate the effectiveness of the exercise, the need for a critique of the exercise, and if deficiencies are found, how they will be corrected.</p>	<p>Section N.1 Describes the requirements for the biennial exercise, including a provision for observers from local and State responders.</p> <p>Section N.2 – Other Drills are based on 10CFR 50.47(b) versus 10 CFR 72.32(a) or (b).</p> <p>Section P.3 for responsibility for scenario and after action report and corrections.</p>
<p>6.0 Assistance</p> <p>The emergency plan should describe provisions and arrangements for assistance from offsite response organizations during and after an emergency. The plan should indicate the location of local assistance with respect to the facility. Exposure guidelines should be clearly communicated to offsite emergency response personnel. The plan should identify the services to be performed, means of communication and notification, and types of agreements that are in place for the following:</p> <ul style="list-style-type: none"> • medical treatment facilities, • first aid personnel and/or ambulance service, • fire fighters, and • local law enforcement <p>assistance/documented memorandum of agreements (specific details may be Safeguards Information).</p>	<p>Section B.9 for assistance requests No specific mention of exposure guidance for offsite workers</p> <p>Section K.1 – Emergency Exposure Guidelines</p>
<p>The emergency plan should describe the measures that will be taken to ensure that offsite response organizations maintain an awareness of their respective roles in an emergency and have the necessary equipment, supplies and periodic training to carry out their emergency response functions. Any provisions to suspend security or safeguards measures for site access during an emergency should be described.</p>	<p>Section O.1 addresses training of offsite responders</p> <p>Section B.2 address suspension of security and safeguards</p>

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The licensee should offer to meet at least annually with each offsite response organization providing onsite support as identified in the licensee's emergency plan, to review items of mutual interest, including relevant changes to the emergency plan. The licensee should discuss the emergency action level scheme, notification procedures, and overall response coordination process during these meetings.	Section O.1 addresses offsite responders/agencies training and review of the EALs annually.