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San Onofre Nuclear Generating Station

August 16, 2010 10 CFR 50.90

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

San Onofre Nuclear Generating Station, Units 2 and 3
Docket Nos. 50-361 and 50-362

Subject: Re-submittal of License Amendment Requests 259 and 245, One-Time Technical Specification (TS) Changes Applicable to TS 3.8.1, "AC Sources - Operating"

References:
1. Letter from Southern California Edison (SCE), Ross T. Ridenoure, to U.S. Nuclear Regulatory Commission (NRC), Attn: Document Control Desk, dated June 17, 2010, Subject: License Amendment Requests 259 and 245, One-Time Technical Specification (TS) Changes Applicable to TS 3.8.1, "AC Sources – Operating"

2. Letter from SCE, Richard J. St Onge, to NRC Attn: Document Control Desk, dated July 22, 2010, Subject: Withdrawal of License Amendment Requests 259 and 245, One-Time Technical Specification (TS) Changes Applicable to TS 3.8.1, "AC Sources - Operating"

Dear Sir or Madam:

In Reference 1 SCE requested license amendments for San Onofre Nuclear Generating Station (SONGS) Units 2 and 3. The proposed amendments requested that the Completion Time of Condition A of Technical Specification 3.8.1, "AC Sources - Operating," be revised on a one-time basis to allow a Completion Time of 10 days. Reference 2 withdrew the proposed amendment requests, based on discussions between SCE and NRC staff on this subject.

Pursuant to 10 CFR 50.90 SCE herewith re-submits the enclosed License Amendment Requests 259 and 245 respectively for Units 2 and 3 - SCE Proposed Change Number (PCN)-597 Revision 1.

The proposed amendments similarly request that the Completion Time of Condition A of Technical Specification 3.8.1, "AC Sources – Operating," be revised on a one-time basis to allow a Completion Time of 10 days. This re-submittal is supported by a deterministic basis for the Completion Time extension.

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This once-per-train change would be used once on each train on each unit and would expire at 2400 hours on June 30, 2012.

The requested change to TS 3.8.1 Completion Time is needed to allow for maintenance to be performed on the 4.16 kV Class 1E breaker cubicles on both units during the next refueling outages. Inspections have identified a number of bottle (bushing) flanges with cracks. All known breaker bus locations with cracked bushings have been previously replaced. The extended Completion Time is requested to quickly complete the "extent-of-condition" inspection and bottle replacement. The existence of cracks in bottle flanges does not impact the operability or reliability of the breakers. The bottle inspection and replacement effort will require extensive work and cannot be completed within the existing 72-hour (3-day) Completion Time. The requested one-time per train Completion Time change will allow for the replacement of all bottles in the 4.16 kV Class 1E breaker cubicles in a single entry into LCO 3.8.1 Condition A per train.

The Enclosure to this letter provides the Description and No Significant Hazards Consideration for the proposed amendments. SCE has determined that there is no significant hazards consideration associated with the proposed change and that the change is exempt from environmental review pursuant to the provisions of 10 CFR 51.22(c)(9).

To facilitate Unit 3 breaker bottle replacements in the Unit 3 Cycle 16 refueling outage (currently scheduled to open breakers on October 10, 2010), SCE requests approval of these proposed license amendments by October 15, 2010, to be effective upon issuance and to be implemented within 60 days.

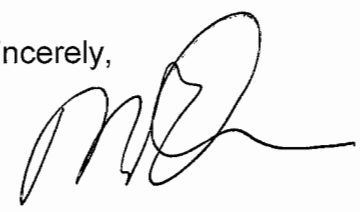
A list of regulatory commitments associated with these proposed amendments is provided in the Enclosure.

If you have any questions or require any additional information, please contact Ms. Linda T. Conklin at (949) 368-9443.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on: 8/16/2010
(Date)

Sincerely,



Douglas R. Bauder

Enclosure:

PCN-597 Rev. 1 with Attachments

1. List of Regulatory Commitments
2. Proposed Technical Specifications Markup Pages, Unit 2
3. Proposed Technical Specifications Markup Pages, Unit 3
4. Proposed Technical Specifications Pages, Unit 2
5. Proposed Technical Specifications Pages, Unit 3
6. Proposed Technical Specifications Bases Markup Pages, Unit 2 (Typical for Units 2 and 3 - For information only)
7. Figure III-I - 1E 4.16kV Electrical Distribution System

cc: E. E. Collins, Regional Administrator, NRC Region IV
R. Hall, NRC Project Manager, San Onofre Units 2 and 3
G. G. Warnick, NRC Senior Resident Inspector, San Onofre Units 2 and 3
S. Y. Hsu, California Department of Public Health, Radiologic Health Branch

ENCLOSURE

EVALUATION OF THE PROPOSED CHANGE

PCN-597 Rev. 1

Technical Specification 3.8.1, AC Sources – Operating

ATTACHMENTS:

1. List of Regulatory Commitments
2. Proposed Technical Specifications Markup Pages, Unit 2
3. Proposed Technical Specifications Markup Pages, Unit 3
4. Proposed Technical Specifications Pages, Unit 2
5. Proposed Technical Specifications Pages, Unit 3
6. Proposed Technical Specifications Bases Markup Pages, Unit 2
   (Typical for Units 2 and 3 - For information only)
7. Figure III-I - 1E 4.16kV Electrical Distribution System

1. SUMMARY DESCRIPTION

PCN-597 Rev.1 is a request to amend Operating Licenses NPF-10 and NPF-15 for the San Onofre Nuclear Generating Station (SONGS) Units 2 and 3, respectively.

This license amendment request will revise Technical Specification (TS):
LCO 3.8.1, “AC Sources – Operating”

The proposed amendments request that the Completion Time of Technical Specification 3.8.1, "AC Sources – Operating," for Condition A, Required Action A.2, be revised to allow a Completion Time of 10 days. This is a once-per-train change for each unit and will expire at 2400 hours (midnight) on June 30, 2012.

The requested change to TS 3.8.1 for Required Action A.2 is requested to allow for preventive maintenance to be performed on the 4.16 kV Class 1E breaker cubicles on both units. Inspections have determined that some bottle (bushing) flanges were found with cracks. All bottle bushings found with cracks to date have been replaced. The potential existence of cracks in bottle flanges does not impact the operability or reliability of the breakers. Bottle replacement will require extensive work and cannot be completed within the existing 72-hour (3-day) Completion Time. Per SONGS current licensing basis the existing 72-hour Completion Time is entered because a bus outage, even on a shutdown unit, affects a required offsite AC power source of one train for the opposite unit. The requested once-per-train Completion Time of 10 days will allow the replacement of all bottles in the 4.16 kV Class 1E breaker cubicles of each unit while one unit is in refueling and the other is operating.

The proposed ten days Completion Time is based on limitations of physical restraints to perform the work. Due to these limitations, a maximum of four breaker positions can be worked simultaneously, requiring 7 days maintenance. Current plans provide for four (4), three-man teams to work around the clock. An additional day is required for testing, final Foreign Materials Exclusion (FME) inspections, and review and release of all orders for Operations to return to service. Operations will require approximately 1 day at the beginning for clearing the system for maintenance and a day at the end to return the bus to service.

Performing each train's bottle replacement work in a single 10 day bus outage per unit is preferred to multiple 72 hour bus outages. Four or five multiple bus outages per train would be required to accomplish all the bottle replacement work in each train. If the work were done in this manner Operations would be required to enter the bus outage procedure on multiple occasions to manipulate the equipment on each entry. This would include establishing the work boundaries by hanging tags that would increase the possibility of error and also require cycling components multiple times. Multiple entries into bus outages also create a higher risk from a human performance perspective than a single entry. Further, the overall bus outage durations would be increased due to multiple tagging activities,

checking, walkdowns, and bus megger testing activities. Absent a 10 day one time extended Completion Time, SCE plans to perform as much maintenance work as possible within single use of the currently established 72-hour Completion Time per train, with additional work to be performed in future outages. All known breaker bus locations with cracked bushings have been previously replaced. The extended Completion Time is requested to more easily complete the "extent-of-condition" inspection and bottle replacement.

Current plans provide for four three-person teams to work around the clock. The bottle maintenance bus outage time will not be prolonged by cleaning and inspection activities being planned in parallel with the bottle replacements. The majority of this preventive maintenance is executed when the bottle replacement is done.

Planned maintenance activities are for a total of 27 breaker positions to be worked on Unit 3. For the subsequent Unit 2 Cycle 17 refueling outage plans are for all 4.16kV breaker bottle replacements on Train A and all but 4 Train B bottle replacements since 4 Unit 2 Train B positions were previously worked in the Unit 2 Cycle 16 refueling outage.

2. DETAILED DESCRIPTION

This proposed change revises LCO 3.8.1, “AC Sources – Operating” Completion Time for Required Action A.2 with one required offsite circuit inoperable from:

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required offsite Circuit inoperable.	A.1 Perform SR 3.8.1.1 for required OPERABLE offsite circuit. AND A.2 Restore required Offsite circuit to OPERABLE status.	1 hour AND Once per 8 hours Thereafter 72 hours AND 17 days from discovery of failure to meet LCO

To:

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required offsite Circuit inoperable.	A.1 Perform SR 3.8.1.1 for required OPERABLE offsite circuit. AND A.2 Restore required Offsite circuit to OPERABLE status.	1 hour AND Once per 8 hours Thereafter -----NOTE------- The Completion Time may be Extended to 10 Days once per Train prior to 7/01/2012 to perform maintenance ---------- 72 hours AND 17 days from discovery of failure to meet LCO

3. TECHNICAL EVALUATION

3.1 Introduction

The offsite transmission system, the switchyard, and the onsite distribution system for the San Onofre Nuclear Generating Station (SONGS) are designed to provide electric power to plant electrical equipment under all plant operating conditions. The electrical system that serves SONGS 2 and 3 provides adequate reliable power sources to all SONGS 2 and 3 electrical equipment for startup, normal operation, safe shutdown, and all emergency situations.

The onsite power system includes the Class 1E power systems which provide auxiliary AC and DC power for equipment used to shut down the reactor safely following a Design Basis Event (DBE). The onsite Class 1E power system is divided into two separate redundant load groups. Each safety-related 4.16 kV load group bus of each unit is supplied by two (normal and alternate preferred) offsite power sources and one standby [Emergency Diesel Generators (EDG)] power source. In the event that the normal preferred power source fails to function, the safety-related loads connected to it will transfer to the alternate preferred power source via the opposite unit through cross-tie circuit breakers.

Technical Specification 3.8.1, "A.C. Sources - Operating" requires that in Modes 1 through 4 there are two OPERABLE qualified circuits between the offsite transmission network and the onsite electrical distribution system. The SONGS-specific Bases for Technical Specification 3.8.1 define these offsite power circuits such that two sources are required to each 4.16 kV load group bus in order to meet the Limiting Condition for Operation (LCO). Technical Specification 3.8.2, "A.C. Sources - Shutdown," requires that in MODES 5 and 6 there is one OPERABLE qualified circuit between the offsite transmission network and the onsite electrical distribution system. Technical Specification 3.8.9, "Distribution Systems - Operating," requires that in MODES 1 through 4 there are two OPERABLE electrical distribution systems. Technical Specification 3.8.10, "Distribution Systems - Shutdown," requires that in MODES 5 and 6 there is one OPERABLE electrical distribution system.

The 4.16 kV Class 1E buses of each unit must be energized in order to provide alternate preferred power to the opposite SONGS unit. In order to perform the planned bottle replacement, a 4.16 kV bus must be made inoperable on a shutdown unit. This meets TSs 3.8.2 and 3.8.10 for the shutdown unit, as there are two OPERABLE offsite power circuits to a single OPERABLE electrical distribution system. For the opposite (operating) unit, however, TS 3.8.1 is not met because one 4.16 kV bus has only one OPERABLE qualified offsite power circuit normal preferred power source. Condition A of TS 3.8.1 must be entered, resulting in a 72-hour Completion Time.

3.2 System Description

3.2.1 Normal Plant Equipment and Alignments

The 4.16 kV Class 1E system is designed to provide sufficient power to the 4.16 kV Class 1E loads required during normal plant operation, safe shutdown of the plant, and the mitigation and control of accident conditions. In order to ensure this capability, the 4.16 kV Class 1E System is separated into two independent redundant load groups A (bus A04) and B (bus A06). The Class 1E AC system distributes power at 4.36 kV (nominal 4.16 kV switchgear), 480 VAC, and 120 VAC to safety-related loads. Updated Final Safety Analysis Report (UFSAR) Table 8.3-1 lists all the safety-related loads supplied from the Class 1E AC system. Figure III-1, "1E 4.16kV Electrical Distribution System," is provided as Attachment 7 and shows the Class 1E AC distribution system.

Two offsite power supply feeders (normal and alternate preferred power sources) and one standby (EDG) supply feeder supply power to each 4.16 kV Class 1E load group bus of each unit. In the event that the normal preferred offsite power feeder fails to function, the safety-related loads connected to it will transfer to the alternate preferred power feeder via the opposite unit through cross-tie circuit breakers. Should both preferred power source feeders become de-energized, the safety-related loads on each bus are picked up by the standby (EDG) power source assigned to that bus.

The Class 1E AC buses are normally supplied from the offsite source through their own unit's reserve auxiliary transformers. This power source is referred to as the normal preferred power source. This is the immediately available offsite power source, even at the minimum switchyard (grid) voltage of 218 kV, under emergency conditions.

As an example, for the Unit 3 breaker bottle replacement, the Unit 2 Class 1E AC buses may also be supplied from the offsite source through the Unit 2's OPERABLE Class 1E AC bus of the same load group via cross-tie breakers. The train A cross-tie is from reserve auxiliary transformer 3XR1 to Bus 2A04 via cross-tie breakers at buses 3A04 and 2A04 and the Train B cross-tie is from reserve auxiliary transformer 3XR2 to bus 2A06 via cross-tie breakers at buses 3A06 and 2A06. This power source is referred to as the alternate preferred power source. This is the delayed offsite power source and this source is not designed for auto-loading (sequencing) of the required Class 1E loads following a Safety Injection Actuation Signal (SIAS) at the minimum switchyard (grid) voltage of 218 kV under emergency conditions. The alternate preferred power source is designed for providing power to Class 1E equipment of both units simultaneously at the normal switchyard (grid) operating voltage.

For each load group, one 4.16 kV feeder circuit breaker is provided for the normal preferred power source, and another 4.16 kV feeder circuit breaker is connected to the alternate preferred power source through the Class 1E bus of

the opposite unit. The normal preferred power source to each bus is electrically interlocked with the alternate preferred power source. In the unlikely event of loss of the normal preferred power source to a load group during normal operation, undervoltage relays (loss of voltage relays or sustained degraded voltage relays) on the 4.16 kV Class 1E bus will cause an automatic transfer to the alternate preferred power source, if available.

Following a unit shutdown, a third preferred power source could be established by manually removing the link in the isolated phase bus between the generator and the main power transformer of the non-operating unit through the supply breaker from the unit auxiliary transformer.

An offsite circuit includes all breakers, transformers, switches, interrupting devices, cabling, and controls required to transmit power from the offsite transmission network to the onsite Class 1E bus or buses.

During MODES 1-4, both Train A Bus 2(3) A04 and Train B Bus 2(3) A06 are required to be operable. For these buses to be declared operable, their corresponding EDG must also be operable in addition to two physically independent normal preferred and alternate preferred power sources. As the alternate preferred power is supplied through the opposite Unit's buses, the opposite Unit's Class 1E buses are also required to be operable.

During MODES 5 and 6, only one preferred power source and one train of the 4.16 kV Class 1E system, with its associated EDG, are required to be operable as a minimum. The alternate preferred power to the opposite unit is supplied through Class 1E bus of the unit in MODES 5 or 6. As a result, both 1E buses of the unit in MODES 5 or 6 remain OPERABLE to support operation of the opposite unit when the opposite unit is in MODES 1 - 4.

In the event of loss of all the offsite power sources or loss of normal preferred power source (degraded or loss of voltage) concurrent with a SIAS, the Class 1E AC buses will be powered from the EDGs which are the standby power source.

The 4.16 kV Class 1E buses are designed to remain connected to the normal preferred power source unless the SONGS switchyard voltage drops and remains below the minimum emergency voltage of 218 kV. In addition, the degraded grid and loss of voltage relays are set to protect the Class 1E equipment from degraded grid conditions.

There are no portions of the 4.16 kV Class 1E system that are shared between Units 2 and 3 during normal operation except the alternate preferred power source which is supplied through the 4.16 kV Class 1E buses of the opposite unit.

3.2.2 EDG Cross-tie Under 10 CFR 50.54(x)

The purpose of the cross-tie is to provide capability to manually cross-connect one unit's EDG to the same train of the other unit's 4.16kV class 1E bus to restore power to the unit experiencing a station blackout (SBO). In the event of loss of all preferred (offsite) power sources to both SONGS units and a station blackout in one of the units (both EDGs are unavailable), one of the other SONGS unit's EDGs (standby power) is available and can supply power to both units' 4.16kV Class 1E buses.

The evaluation, associated plant modification, and manual operation for the EDG cross-tie are implemented under 10 CFR 50.54(x) which states that "A licensee may take reasonable action that departs from a license condition or a technical specification (contained in a licensee issued under this part) in an emergency when this action is immediately needed to protect the public health and safety and no action consistent with licensee conditions and technical specifications that can provide adequate or equivalent protection is immediately apparent".

Table 3.1 lists the manually controlled shutdown loads that are expected to operate during the postulated event or scenario being considered. Limiting the shutdown loads to those listed in the table ensures that the total EDG load will not exceed its continuous rating of 4700 kW. Plant licensed operators, however, may change the loading as necessary without exceeding EDG normal load limit of 4700 kW, continuous, or 5170 kW maximum for any 2 hours in a 24 hour period. The following are the EDG loads for cases considered during EDG cross-tie operations:

CASE I Both Units 2 and 3 in hot standby with Loss of Power (LOP) in Unit 2 and SBO in Unit 3 (4565 kW)

CASE II Unit 2 in shutdown cooling and Unit 3 in hot standby with LOP in Unit 2 and SBO in unit 3 (4071 kW)

CASE III Both Units 2 and 3 in long term shutdown cooling with LOP in Unit 2 and SBO in Unit 3 (4589 kW)

The total EDG kW load determined for each postulated scenario is based on the minimum shutdown loads listed in Table 3.1. The maximum EDG kW loading is 4589 kW (CASE III) which is below the 4700 kW continuous rating of the EDG. Therefore, a single EDG is capable of supplying the minimum load necessary to bring both units into a safe shutdown without exceeding the EDG normal load limit of 4700 kW, continuous, or 5170 kW maximum for 2 hours in a 24 hour period.

Emergency Operating Instructions (EOIs) are in place to connect the cross-tie and maintain EDG loading within the limiting 4700 kW continuous rating during cross-tie operation. The EOI for supplying the 1E bus with the opposite unit's diesel has a caution: “If loads are being supplied on both units, there is not sufficient load capacity to establish all loads for all Safety Functions. Loads should be started as directed by the Senior Reactor Operator (SRO)-in-charge based on the highest priority Safety Function that is not controlled. Consideration may be given to alternating loads after a Safety Function is controlled."

TABLE 3.1 LOADING SUMMARY			
UNIT 2 AND COMMON			
Load Description	**Case I**	**Case II**	**Case III**
CS Pump 2P012 @ 440 BHP			
AFW Pump 2P141 @ 868 BHP	X		
CCW Pump 2P024 @ 594 BHP			
CCW Pump 2P025 @ 594 BHP	X	X	X
LPSI Pump 2P015 @ 485 BHP		X	X
HPSI Pump 2P017 @ 505 BHP			
HPSI Pump 2P018 @ 505 BHP			
SWC Pump 2P112 @ 413 BHP			
SWC Pump 2P307 @ 413 BHP	X	X	X
Pressurizer Heater Panel 2BHP04 @ 200kW*	X		
Charging Pump @ 2P191 @ 70 BHP	X	X	X
Charging Pump @ 2P190 @ 70 BHP			
Hydrogen Recombiner 2E145 @ 75 kW			
Upper Dome Air Circulator 2A071 @ 68 BHP			
Standby Upr Dome Air Circ 2A074 @ 68 BHP			
Containment Emergency Fan 2E399 @ 74 BHP			
Containment Emergency Fan 2E401 @ 74 BHP			
Non-1E UPS Transformer 2T014 @ 150 KVA	X	X	X
MCC 2BRA	X	X	X
MCC 2BD	X	X	X
MCC 2BE	X	X	X
MCC 2BY	X	X	X
MCC BQ (Common)	X	X	X
Emerg. Chiller E336 @ 582 BHP (Common)	X	X	X
CR Emerg. AC E418 @ 150 BHP (Common)	X	X	X

TABLE 3.1 LOADING SUMMARY (continued)			
UNIT 3			
Load Description	**Case I**	**Case II**	**Case III**
CS Pump 3P012 @ 440 BHP			
AFW Pump 3P141 @ 868 BHP	X	X	
CCW Pump 3P024 @ 594 BHP			X
CCW Pump 3P025 @ 594 BHP			
LPSI Pump 3P015 @ 485 BHP			X
HPSI Pump 3P017 @ 505 BHP			
HPSI Pump 3P018 @ 505 BHP			
SWC Pump 3P112 @ 413 BHP			
SWC Pump 3P307 @ 413 BHP			X
Pressurizer Heater Panel 3BHP04 @ 200kW*	X	X	X*
Charging Pump @ 3P191 @ 70 BHP	X	X	X
Charging Pump @ 3P190 @ 70 BHP			
Hydrogen Recombiner 3E145 @ 75 kW			
Upper Dome Air Circulator 3A071 @ 68 BHP			
Standby Upper Dome Air Circ 3A074 @ 68 BHP			
Containment Emergency Fan 3E399 @ 74 BHP			
Containment Emergency Fan 3E401 @ 74 BHP			
Non-1E UPS Transformer 3T014 @ 150 KVA	X	X	X
MCC 3BRA	X	X	X
MCC 3BD	X	X	X
MCC 3BE	X	X	X
MCC 3BY	X	X	X

* Only one pressurizer heater may be energized in any one unit, not on both units.

3.2.3 Plant Configuration During Unit 3 Cycle 16 Outage

During the Unit 3 refueling outage SCE plans to replace the steam generators. To facilitate the Unit 3 SGR an outside lift system (OLS) and a steam generator replacement (SGR) service crane will be in use at Unit 3. To preclude interference with the crane, the Unit 3 main transformer will be de-energized and tagged out at the start of the outage and remain disconnected during most of the outage duration. Overhead lines will be removed to allow the SGR yard service crane to function in the area. Thus, back feed of the main transformer for Unit 3 will not be available but the normal preferred power (offsite power) source to Unit 3 (shutdown) and alternate

preferred power source for Unit 2 (operating) will, through the reserve auxiliary transformers, remain operable to both safety related trains except during outage of a safety bus.

A review of safety related or important to safety systems, structures, or components (SSC) in the area of use of the OLS and service crane has been performed to minimize the risk to the switchyard and reserve auxiliary transformers. Mitigating actions have been set in place for the service crane to ensure no movement of load over the switchyard to minimize the risk to the switchyard. Additionally, work controls will be in place to lay the boom down prior to severe weather. Rigging activities will be limited to one end of the OLS to limit potential impact to Unit 3 Train A diesel generator cables located underground near the containment equipment hatch. In addition the OLS construction, use, and removal will be limited to specific outage windows to reduce risk to the Unit 3 Train A diesel generator cables. For both the OLS and the service crane, use of SONGS NUREG 0612 heavy loads procedural requirements has been established to ensure safe load paths are followed, or safe shutdown equipment is taken out of service, during the rigging activity. Also, a Unit 3 Cycle 16 shutdown qualitative risk assessment is planned, similar to that done for the recent Unit 2 Cycle 16 refueling and steam generator replacement outage, that provides qualitative risk management actions to demonstrate acceptable outage risk during construction, use, and deconstruction of the OLS.

3.2.4 Portable Non-Class 1E Standby (Diesel) Power

SCE has looked into the possibility of staging a temporary diesel generator during the extended safety bus outages but believes the use of safety related prestaged and proceduralized cross tie is a preferable contingency, based on the following:

1) SONGS operators are trained to use a proceduralized manual cross connection of the EDG of the opposite unit under 10 CFR 50.54(x) after normal actions have been proven unsuccessful, or Safety Functions are challenged by being in danger of becoming NOT satisfied. Note that this 50.54(x) option for the train that is not in LCO 3.8.1 provides an additional layer of defense in depth.

2) SONGS is a small site and most of the available area in the upcoming refueling outage will be used for steam generator replacement. Further, the SONGS Class 1E buses do not have a spare 4.16kV breaker position available to connect a spare generator.

3.2.5 Bus Outage Schedule Shift

SCE has investigated delaying the Unit 3 Cycle 16 first (Train A) bus outage from the planned October 22, 2010 date, to provide a corresponding increased NRC

review time. However, the refueling outage mechanical windows and the electrical windows are closely related and both immediately follow the de-fueled window. Delaying the electrical window was determined to cause multiple train outage window entries and an overall longer unavailability window for certain components, increasing out of service time and risk. Additionally, such action was considered potentially error likely because it would deviate from normally established outage sequencing. This bus outage change would also impact the outage's overall Defense-In-Dept (DID) and the outage's safety plan.

3.2.6 Bases for Retaining Technical Specification Change Up to July 1, 2012

The Unit 2 Cycle 17 refueling outage start is planned for Jan 2, 2012 with an expected duration of approximately seventy days, to accommodate planned reactor vessel head replacement. The proposed TS expiration date of "prior to July 1, 2012" is based on the planned outage start date, duration, and an additional margin of approximately three months.

3.2.7 Incorporation of Breaker Bus Preventive Maintenance

During the 4.16 kV bus outages SCE plans to complete required breaker bus clean and inspect preventive maintenance (PM). Work is planned to ensure cleaning and inspection of 4.16 kV breaker cubicle position 3A0419 which was previously unavailable for cleaning and inspection, as discussed during a recent NRC inspection. This PM would be performed within the planned breaker bottle replacement maintenance work windows.

3.3 Deterministic Evaluation

The 4.16 kV Class 1E system provides a stable and reliable AC power source to all the 4.16 kV Class 1E loads during different modes of operation, and the mitigation and control of accident conditions. Two offsite power supply feeders (normal and alternate preferred power sources) and one standby (EDG) supply feeder supply power to each 4.16 kV Class 1E load group bus (Train A 2(3) A04 and Train B 2(3) A06) of each unit. The 4.16 kV Class 1E system is designed to remain connected to the normal preferred power source unless the SONGS switchyard voltage drops below the minimum emergency voltage of 218 kV. In addition, the degraded grid and loss of voltage relays are set to protect the Class 1E equipment from degraded grid conditions.

During normal operation, if the normal preferred offsite power feeder fails to function, the safety-related loads connected to it will transfer to the alternate preferred power feeder via the opposite unit through cross-tie circuit breakers. In the event of loss of all the offsite power sources, or loss of normal preferred power source (degraded or loss of voltage) concurrent with a SIAS, the Class 1E AC system buses will be powered from the associated EDG, the standby power sources, if available.

The combination of defense-in-depth and safety margin inherent in the AC power sources ensures adequate power for the 4.16 kV Class 1E loads and supports one time extension for each 4.16 kV bus (2A04, 2A06, 3A04 and 3A06) of the Completion Time from 72 hours to 10 days for once-per-train preventive maintenance.

3.3.1 Defense-In-Depth Evaluation

As described above, the 4.16 kV Class 1E system of each SONGS unit is separated into two independent load groups A (bus 2(3) A04) and B (bus 2(3) A06). The system design configuration ensures that each of the two buses is electrically and physically isolated from each other. For each load group bus, one 4.16 kV feeder circuit breaker is provided for the normal preferred power source and another 4.16 kV feeder circuit breaker is connected to the alternate preferred power source through the Class 1E bus of the similar load group of the opposite unit. Removal from service of a 4.16 kV bus of one unit (2A04 or 2A06) affects the alternate preferred power source to only one 4.16 kV bus of the other unit (3A04 or 3A06). In this configuration, the redundant 4.16 kV Class 1E bus of the operating unit would have both offsite power circuits and an onsite power source available whereas the affected 4.16 kV bus on the operating unit would have one offsite power circuit (normal preferred power source) and an onsite power source available. Each redundant 4.16 kV Class 1E bus has capability to feed all the 4.16 kV Class 1E loads required during normal plant operation, safe

shutdown of the plant, and the mitigation and control of accident conditions. Unavailability of the Unit 3 backfeed power source due to disconnection of Unit 3 main transformer feed will have insignificant impact on Unit 2 as the alternate preferred power will be available through Unit 2 reserve auxiliary transformers (2XR1 & 2XR2).

The defense-in-depth philosophy requires multiple means or barriers to be in place to accomplish safety functions and prevent the release of radioactive material. During operation with an alternate preferred power circuit unavailable to one of the two redundant 4.16 kV Class 1E buses, each 4.16 kV bus will be capable to provide power for normal plant operation, safe shutdown of the plant, and the mitigation and control of accident conditions. The affected redundant 4.16 kV Class 1E bus will not be able to provide power to its loads if normal preferred power source and the associated EDG fail during a Design Basis Event (DBE). Should a Loss of Offsite Power (LOOP) occur during a DBE, the impact will be effectively the same whether the alternate preferred power circuit was available or unavailable as the 4.16 kV Class 1E loads would be transferred to the associated bus EDG.

A complete LOOP will result in a shut down of the operating unit, unavailability of an alternate preferred power circuit to a redundant 4.16 kV Class 1E bus, and a transfer to the same units' EDG. Subsequent failure of both EDGs on one unit would result in a Station Blackout. In this case, SONGS has a proceduralized cross connection of the EDG of the opposite unit manually under 10 CFR 50.54(x) after normal actions have been proven unsuccessful, or Safety Functions are challenged by potentially becoming NOT satisfied.

SONGS 4.16 kV Class 1E and 480 VAC Systems are in compliance with the requirements of General Design Criterion (GDC) 17. Each Class 1E load group has the required independence, capacity, redundancy, and testability to ensure the functioning of ESF systems. Independence by physical separation of components and cables minimizes the vulnerability of redundant systems to any single credible accident.

Two physically independent sources of offsite power provide power to each bus of the Class 1E Electrical Distribution System of each unit. The offsite electric power supply capacity and isolation provisions ensure that failure of a single component will not prevent safety related systems from performing their safety functions. As discussed above, one of these circuits is designed to be available immediately following a Loss Of Coolant Accident (LOCA) to ensure that core cooling, containment integrity, and other vital safety functions are maintained as required by 10 CFR 50 Appendix A under GDC 17. The second circuit (alternate preferred power supply) is treated as a delayed source per 10 CFR 50 Appendix A under GDC 17. The alternate preferred power source, even though automatically available, is not designed for auto loading (sequencing) of the

required Class 1E loads following a LOCA at the emergency condition minimum switchyard (grid) voltage of 218 kV. The alternate preferred power source is designed for providing power to the Class 1E equipment of both units simultaneously at the normal switchyard (grid) operating voltage, 226 kV to 232 kV. The Class 1E Electrical Distribution System is also furnished with two EDGs for each unit. Each EDG and associated Class 1E switchgear is capable of supplying sufficient power, assuming the unavailability of offsite power, for the operation of the Engineered Safety Features (ESF) systems required with or without a DBA.

SONGS design meets the requirements of 10 CFR 50 Appendix A under GDC 17 by providing two offsite power sources (normal and alternate preferred power sources) and one standby (EDG) power source to each 4.16 kV Class 1E load group bus of each unit. IEEE 765 provides guidance on the requirements given in GDC 17 for Preferred Power Supply (PPS) connections to the onsite Class 1E power distribution system. Per IEEE 765, the two circuits may be connected by way of the non-Class 1E distribution system to the redundant Class 1E bus with a single circuit to each bus but direct connection of the two circuits to each redundant Class 1E bus may further enhance availability. Thus SCE would meet 10 CFR 50 Appendix A GDC 17 minimum requirements per guidance of IEEE 765, when alternate preferred power source circuit is only available to one redundant 4.16 kV Class 1E load group bus of the operating unit due to removal of the associated 4.16 kV Class 1E load group bus of the opposite unit. As such, removal of a 4.16 kV Class 1E bus of a shut down unit has minimal impact on the operating unit. Additionally, the availability of a 50.54(x) cross-tie to the unaffected EDG of the opposite unit provides an additional layer of defense in depth.

3.3.2 Safety Margin Evaluation

The proposed extension of the alternate preferred power source circuit TS Completion Time for one redundant train at a time remains consistent with the codes and standards applicable to SONGS AC sources and electrical distribution system. With the alternate preferred power source circuit unavailable to one of the two redundant 4.16 kV Class 1E buses at a time, the operating unit meets 10 CFR 50 Appendix A GDC 17 minimum requirements, per the guidance of IEEE 765.

The Class 1E AC buses are normally supplied from the offsite source through their own unit's reserve auxiliary transformers. This power source is referred to as the normal preferred power source. In the event of loss of all the offsite power sources or loss of normal preferred power source (degraded or loss of voltage) concurrent with a SIAS, the Class 1E AC system will be powered from the EDG, the standby power source, if available. The 4.16 kV Class 1E system is designed to remain connected to the normal preferred power source unless the

SONGS switchyard voltage drops below the 218 kV minimum emergency voltage.

Should a LOOP occur or a normal preferred power source circuit is lost during a DBE, the impact will be effectively the same, whether alternate preferred power circuit was available or unavailable, as the 4.16 kV Class 1E loads would be transferred to the associated bus EDG.

The simultaneous outage of a redundant 4.16 kV Class 1E bus in the opposite unit, causing the alternate preferred power source circuit to be unavailable for a single train, and failure of the normal preferred power source, along with the failure of associated EDG during a DBE, is unlikely due to postulating multiple failures. In this condition, the redundant train of 4.16 kV Class 1E load group bus will automatically actuate to mitigate the accident, and the affected unit will remain within the bounds of the accident analysis.

In addition, SONGS has a proceduralized cross connection of the EDG of the opposite unit manually under 10 CFR 50.54(X) during SBO if Safety Functions are challenged by being in danger of becoming NOT satisfied. Since the probability of these events occurring simultaneously during a planned maintenance activity on a single train has shown to be low, there is minimal safety impact due to the proposed one time per train extended Completion Time.

3.3.3 Compensatory Measures

In order to avoid risk-significant configurations reasonable assurance is being provided by implementing the following compensatory measures for the on-line unit and for the outage unit.

Specifically, the following equipment is required to be made available and protected by ensuring operability. These requirements are contained in the proposed TS Bases change associated with this license amendment request:

Online Unit Compensatory Measures - On-Line Unit (MODES 1 to 4)

- Protect the available offsite source: via switchyard barriers and 4.16 kV cross-tie breaker barriers.

- Protect both onsite sources – Perform Surveillances on the operating unit EDGs prior to entering Action Statement, and protect the available switchgear room.

- Ensure the protected train is the train with the OPERABLE 4.16 kV cross-tie.

- Ensure affected train common equipment (1E 480 VAC buses, emergency chillers, control room emergency cooling units) are aligned to the on-line unit.

- Protect all 3 AFW pumps.

- Protect switchgear room normal HVAC cooling unit and exhaust fan.

- Do not allow any switchyard work, or train work on the protected train.

Outage Unit Compensatory Measures

- Protect the available train offsite source: via switchyard barriers and 4.16 kV cross-tie breaker barriers.

- Protect the available train onsite source, EDG and 4.16 kV bus.

- Protect all available train safety function equipment CCW (component cooling water), SWC (saltwater cooling), SDC (shutdown cooling), and SFP (Spent Fuel Pool) cooling.

- Do not allow any work in the switchyard or on the protected electric power buses that are providing safety function fulfillment.

- Scheduling: Work the supply cubicles and cross-tie cubicle bottle replacements first, allowing for a quicker emergency return to service.

- Develop a plan to effect an emergency return to service, if required to support the operating unit.

- Bus outages are to be performed during the core offload window, when all fuel is removed from the reactor vessel.

The following compensatory measures apply to the Unit 3 Cycle 16 refueling only since Unit 3 steam generator replacement is planned for this outage:

- Rigging activities to be limited to one end of the steam generator replacement outside lift system (OLS) to limit potential impact to Unit 3 Train A diesel generator cables located underground near the containment equipment hatch.

- OLS construction, use, and removal to be limited to specific outage windows to reduce risk to the Unit 3 Train A diesel generator cables.

- SONGS NUREG 0612 heavy loads procedural requirements are to be implemented for both the OLS and the service crane to ensure safe load paths are followed, or safe shutdown equipment is taken out of service, during the rigging activity.

- A Unit 3 Cycle 16 shutdown qualitative risk assessment to be performed to provide qualitative risk management actions to demonstrate acceptable outage risk during construction, use, and deconstruction or the OLS.

- Work controls to be in place to lay the service crane boom down prior to severe weather.

- There are to be no load movements by the service crane over the switchyard.

It is recognized that TS Limiting Condition for Operation (LCO) 3.0.3 must be entered if the other 1E 4.16 kV bus for the on-line unit becomes inoperable. In addition, increases in risk posed by potential combinations of equipment out-of-service will be managed under the SONGS 10 CFR 50.65(a)(4) Maintenance Rule (MR) risk management program.

3.4 Conclusion

The results of the deterministic evaluation described above provide reasonable assurance that the equipment required to safely shutdown the operating unit and mitigate the effects of a Design Basis Accident will remain capable of performing their safety function when the alternate preferred power source circuit is unavailable to one of the two redundant 4.16 kV Class 1E buses of the operating unit. The deterministic evaluation concluded that the proposed change is consistent with the defense-in-depth philosophy, in that: 1) there continue to be multiple means available to accomplish the required safety functions and prevent the release of radioactive material in the event of an accident; and 2) multiple barriers currently exist and additional barriers will be provided to minimize the risk associated with entering the extended alternate preferred power source TS Completion Time for one redundant train at a time so that protection of the public health and safety is assured. SONGS continues to meet 10 CFR 50, Appendix A, GDC 17 minimum requirements with the alternate preferred power source circuit unavailable to one of the two redundant 4.16 kV Class 1E buses at a time.

4. REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements/Criteria

Technical Specification (TS) 3.8.1, "AC Sources - Operating"

Technical Specification (TS) 3.8.1, "AC Sources - Operating," requires that two physically independent qualified circuits be supplied to the onsite Class 1E AC Electrical Power Distribution System. The Class 1E AC Electrical Power Distribution System consists of two 4.16 kV Engineered Safety Feature (ESF) buses, each having at least one separate and independent offsite source of power as well as a dedicated onsite EDG source.

Appendix A to Part 50 – General Design Criteria for Nuclear Power Plants

Criterion 17 – *Electric power systems.* "An onsite electric power system and an offsite electric power system shall be provided to permit functioning of structures, systems, and components important to safety. The safety function for each system (assuming the other system is not functioning) shall be to provide sufficient capacity and capability to assure that (1) specified acceptable fuel design limits and design conditions of the reactor coolant pressure boundary are not exceeded as a result of anticipated operational occurrences and (2) the core is cooled and containment integrity and other vital functions are maintained in the event of postulated accidents.

The onsite electric power supplies, including the batteries, and the onsite electric distribution system, shall have sufficient independence, redundancy, and testability to perform their safety functions assuming a single failure.

Electric power from the transmission network to the onsite electric distribution system shall be supplied by two physically independent circuits (not necessarily on separate rights of way) designed and located so as to minimize to the extent practical the likelihood of their simultaneous failure under operating and postulated accident and environmental conditions. A switchyard common to both circuits is acceptable. Each of these circuits shall be designed to be available in sufficient time following a loss of all onsite alternating current power supplies and the other offsite electric power circuit, to assure that specified acceptable fuel design limits and design conditions of the reactor coolant pressure boundary are not exceeded. One of these circuits shall be designed to be available within a few seconds following a loss-of-coolant accident to assure that core cooling, containment integrity, and other vital safety functions are maintained.

Provisions shall be included to minimize the probability of losing electric power from any of the remaining supplies as a result of, or coincident with, the loss of power

generated by the nuclear power unit, the loss of power from the transmission network, or the loss of power from the onsite electric power supplies."

The onsite electric power system includes two safety-related load groups. The load groups are redundant in that each load group is capable of assuring items 1 and 2 above. Sufficient independence is provided between redundant load groups to ensure that postulated single failures affect only a single load group and are limited to the extent of total loss of that load group. The proposed amendment only reduces availability of alternate preferred power source circuit (delayed source) to only one redundant 4.16 kV Class 1E load group due to removal of the associated 4.16 kV Class 1E load group bus of the opposite unit. The other redundant 4.16 kV Class 1E load group bus of the operating unit will have both preferred power source circuits available. The redundant load group remains intact in order to provide for the measures specified in items 1 and 2 above.

In the case of loss of offsite power, the Class 1E system is automatically isolated from the remaining portion of the switchyard. Undervoltage relays are provided on the Class 1E buses to trip the breakers if offsite power is lost.

Protection such as voltage restraint overcurrent, reverse power, and undervoltage are provided to trip the EDG circuit breaker, if abnormal conditions occur while the EDG is synchronized to the preferred power source during a test, which prevents damage to or shutdown of the EDG. In addition, each load group of the Class 1E power system is electrically and physically isolated from the redundant load group. The combination of these factors minimizes the probability of losing electric power from the standby onsite power supplies as a result of the loss of power from the transmission system.

Criterion 18 – *Inspection and testing of electric power systems.* "Electric power systems important to safety shall be designed to permit appropriate periodic inspection and testing of important areas and features, such as wiring, insulation, connections, and switchboards, to assess the continuity of the systems and the condition of their components. The systems shall be designed with a capability to test periodically (1) the operability and functional performance of the components of the systems, such as onsite power sources, relays, switches, and buses, and (2) the operability of the systems as a whole and, under conditions as close to design as practical, the full operation sequence that brings the systems into operation, including operation of applicable portions of the protection system, and the transfer of power among the nuclear power unit, the offsite power system, and the onsite power system."

The Class 1E system is designed to permit:

1. Periodic inspection and testing of wiring, insulation, connections, and relays to assess the continuity of the systems and the condition of components during equipment shutdown.

2. Periodic testing of the operability and functional performance of standby onsite power supplies, circuit breakers and associated control circuits, relays and buses during normal plant operation.

3. Testing of the operability of the Class 1E system as a whole. Under conditions as close to design as practical, the full operational sequence that brings the system into operation, including operation of signals of the engineered safety features actuation system and the transfer of power between the offsite and the standby onsite power systems, will be tested during plant shutdown.

The proposed change does not affect any design features or plant operations.

4.2 Precedent

A review of license amendment requests submitted to the NRC by other licensees has identified a precedent for extending the Completion Time for TS 3.8.1. NRC letter dated October 3, 2006 "Oconee Nuclear Station Units 1, 2, and 3 - Exigent Technical Specification One-time Change Request to Extend the Allowed Outage Time for Keowee Hydro Unit 2 (KHU2) (TAC No. MD3070, MD3071, and MD3072)" revised TS 3.8.1, "AC Sources - Operating to allow a one time Completion Time of 30 days for the Oconee Nuclear Site to allow for an extended KHU2 repair outage.

4.3 Significant Hazards Consideration

Southern California Edison (SCE) has evaluated whether or not a significant hazards consideration is involved with the proposed amendments by focusing on the standards set forth in 10 CFR 50.92, Issuance of Amendment, as discussed below:

4.3.1 Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

This proposed Technical Specification amendment provides a one-time per train extension of the Completion Time of Condition A of Technical Specification 3.8.1, "AC Sources – Operating." Condition A will be revised on a one-time basis to allow a Completion Time of 10 days. This one-time change would be used once on each train on each unit. The revised Completion Time accommodates maintenance which is to be performed on the 4.16 kV Class 1E breaker cubicles on both units to replace cracked bottle (bushing) flanges. The bottle flange replacement requires extensive work and cannot be completed within the existing 72-hour (3-day) Completion Time.

The consequences associated with extending the Completion Time by 7 days have been evaluated and there is no significant increase in the probability or consequences of an accident previously evaluated.

The minimum requirements of 10 CFR 50 Appendix A, GDC 17 with the alternate preferred power source circuit unavailable to one of the two redundant 4.16 kV Class 1E buses at a time will continue to be met.

Further, the additional time to effect repairs for the bottles will allow for full inspection and replacement of any degraded condition in a timely manner with the minimum impact to safety.

Consequently, this change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

4.3.2 Does the proposed change create the possibility of a new or different kind of accident from accident previously evaluated?

Response: No.

The request for this one-time per train Technical Specification change involves an extension of the Completion Time for Technical Specification 3.8.1, Required Action A.2, associated with restoring compliance with the Technical Specification. The proposed change will not physically alter the present plant configuration nor adversely affect how the plant is currently operated. The plant configuration that would result from use of the revised Completion Time is currently allowed by existing Technical Specifications, only for a shorter duration. This Completion Time change does not create a new or different kind of accident from any kind of accident previously evaluated.

Consequently, there is no possibility of a new or different kind of accident due to this change.

4.3.3 Does the proposed change involve significant reduction in a margin of safety?

Response: No.

This proposed Technical Specification amendment provides a one-time per train extension of the Completion Time of Condition A of Technical Specification 3.8.1, "AC Sources – Operating." Condition A will be revised on a one-time basis to allow a Completion Time of 10 days. This one-time change would be used once on each train on each unit. The revised Completion Time accommodates maintenance which is to be performed on the 4.16 kV Class 1E breaker cubicles on both units to replace cracked bottle (bushing) flanges. The bottle flanges replacement requires extensive work and cannot be completed within the existing 72-hour (3-day) Completion Time.

The minimum requirements of 10 CFR 50 Appendix A, GDC 17 with the alternate preferred power source circuit unavailable to one of the two redundant 4.16 kV Class 1E buses at a time continues to be met.

Further, the additional time to effect repairs for the bottles will allow for full inspection and replacement of any degraded condition in a timely manner with the minimum impact to safety.

Consequently, there is no significant reduction in a margin of safety due to this change.

Based on the above, Southern California Edison concludes that the proposed amendments do not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and accordingly, a finding of no significant hazards consideration is justified.

4.4 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 operation in the proposed manner, (2) such activities will be conducted in compliance with the Commissions' regulations, and (3) the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

5. ENVIRONMENTAL CONSIDERATION

The proposed amendment does not change any requirements with respect to the installation of or use of a facility component located within the restricted area, as defined in 10 CFR 20, or change any inspection or surveillance requirement. The proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amount of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

Attachment 1

List of Regulatory Commitments

List of Regulatory Commitments

The following table identifies the regulatory commitments in this document. Any other statements in this submittal represent intended or planned actions, are provided for information purposes, and are not considered to be regulatory commitments.

COMMITMENT	TYPE		SCHEDULED COMPLETION DATE (if applicable)
	One-time/train	Continuing Compliance	
Online Unit (MODES 1 to 4) Compensatory Measures SCE will …. • Protect the available offsite source: via switchyard barriers and 4.16 kV cross-tie breaker barriers.	X		Expires on June 30, 2012 at 2400 hours
• Protect both onsite sources – Perform Surveillances on the operating unit EDGs prior to entering Action Statement, and protect the available switchgear room.	X		Expires on June 30, 2012 at 2400 hours
• Ensure the protected train is the train with the Operable 4.16 kV cross-tie.	X		Expires on June 30, 2012 at 2400 hours
• Ensure affected train common equipment (1E 480 VAC buses, emergency chillers, control room emergency cooling units) are aligned to the on-line unit.	X		Expires on June 30, 2012 at 2400 hours
• Protect all 3 AFW pumps	X		Expires on June 30, 2012 at 2400 hours
• Protect switchgear room normal HVAC cooling unit and exhaust fan.	X		Expires on June 30, 2012 at 2400 hours
• Do not allow any switchyard work, or train work on the protected train.	X		Expires on June 30, 2012 at 2400 hours

COMMITMENT	TYPE		SCHEDULED COMPLETION DATE (if applicable)
	One-time/train	Continuing Compliance	
Outage Unit Compensatory Measures SCE will …. • Protect the available train offsite source: via switchyard barriers and 4.16 kV cross-tie breaker barriers.	X		Expires on June 30, 2012 at 2400 hours
• Protect the available train onsite source, EDG and 4.16 kV bus.	X		Expires on June 30, 2012 at 2400 hours
• Protect all available train safety function equipment CCW (component cooling water), SWC (saltwater cooling), SDC (shutdown cooling), and SFP (Spent Fuel Pool) cooling.	X		Expires on June 30, 2012 at 2400 hours
• Do not allow any work in the switchyard or on the protected electric power buses that are providing safety function fulfillment.	X		Expires on June 30, 2012 at 2400 hours
• Scheduling: Work the supply cubicles and cross-tie cubicle bottle replacements first, allowing for a quicker "emergency" return to service.	X		Expires on June 30, 2012 at 2400 hours
• Develop a plan to effect an emergency return to service, if required to support the operating unit.	X		Expires on June 30, 2012 at 2400 hours
• Bus outages are to be performed during the core offload window, when all fuel is removed from the reactor vessel.	X		Expires on June 30, 2012 at 2400 hours

COMMITMENT	TYPE		SCHEDULED COMPLETION DATE (if applicable)
	One-time/train	Continuing Compliance	
The following compensatory measures apply to the Unit 3 Cycle 16 refueling only since Unit 3 steam generator replacement is planned for this outage:			
• Rigging activities to be limited to one end of the steam generator replacement outside lift system (OLS) to limit potential impact to Unit 3 Train A diesel generator cables located underground near the containment equipment hatch.	X		Expires on June 30, 2011 at 2400 hours
• OLS construction, use, and removal to be limited to specific outage windows to reduce risk to the Unit 3 Train A diesel generator cables.	X		Expires on June 30, 2011 at 2400 hours
• SONGS NUREG 0612 heavy loads procedural requirements are to be implemented for both the OLS and the service crane to ensure safe load paths are followed, or safe shutdown equipment is taken out of service, during the rigging activity.	X		Expires on June 30, 2011 at 2400 hours
• A Unit 3 Cycle 16 shutdown qualitative risk assessment to be performed to provide qualitative risk management actions to demonstrate acceptable outage risk during construction, use, and deconstruction or the OLS.	X		Expires on June 30, 2011 at 2400 hours
• Work controls to be in place to lay the service crane boom down prior to severe weather	X		Expires on June 30, 2011 at 2400 hours
• No load movements by the service crane over the switchyard	X		Expires on June 30, 2011 at 2400 hours

Attachment 2

Proposed Technical Specifications Markup Pages, Unit 2

3.8 ELECTRICAL POWER SYSTEMS

3.8.1 AC Sources – Operating

LCO 3.8.1 The following AC electrical sources shall be OPERABLE:

a. Two qualified circuits between the offsite transmission network and the onsite Class 1E AC Electrical Power Distribution System; and

b. Two diesel generators (DGs) each capable of supplying one train of the onsite Class 1E AC Electrical Power Distribution System.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required offsite circuit inoperable.	A.1 Perform SR 3.8.1.1 for required OPERABLE offsite circuit. AND A.2 Restore required offsite circuit to OPERABLE status.	1 hour AND Once per 8 hours thereafter -----NOTE------- The Completion Time may be extended to 10 days once per train prior to 7/01/2012 to perform maintenance. ---------- 72 hours AND 17 days from discovery of failure to meet LCO

(continued)

Attachment 3

Proposed Technical Specifications Markup Pages, Unit 3

3.8 ELECTRICAL POWER SYSTEMS

3.8.1 AC Sources – Operating

LCO 3.8.1 The following AC electrical sources shall be OPERABLE:

a. Two qualified circuits between the offsite transmission network and the onsite Class 1E AC Electrical Power Distribution System; and

b. Two diesel generators (DGs) each capable of supplying one train of the onsite Class 1E AC Electrical Power Distribution System.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required offsite circuit inoperable.	A.1 Perform SR 3.8.1.1 for required OPERABLE offsite circuit. AND A.2 Restore required offsite circuit to OPERABLE status.	1 hour AND Once per 8 hours thereafter -----NOTE------- The Completion Time may be extended to 10 days once per train prior to 7/01/2012 to perform maintenance. ---------- 72 hours AND 17 days from discovery of failure to meet LCO

(continued)

Attachment 4

Proposed Technical Specifications Pages, Unit 2

3.8 ELECTRICAL POWER SYSTEMS

3.8.1 AC Sources – Operating

LCO 3.8.1 The following AC electrical sources shall be OPERABLE:

a. Two qualified circuits between the offsite transmission network and the onsite Class 1E AC Electrical Power Distribution System; and

b. Two diesel generators (DGs) each capable of supplying one train of the onsite Class 1E AC Electrical Power Distribution System.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One required offsite circuit inoperable.	A.1	Perform SR 3.8.1.1 for required OPERABLE offsite circuit.	1 hour AND Once per 8 hours thereafter
	AND		
	A.2	Restore required offsite circuit to OPERABLE status.	-----NOTE------- The Completion Time may be extended to 10 days once per train prior to 7/01/2012 to perform maintenance. ---------- 72 hours AND 17 days from discovery of failure to meet LCO

(continued)

Attachment 5

Proposed Technical Specifications Pages, Unit 3

3.8 ELECTRICAL POWER SYSTEMS

3.8.1 AC Sources – Operating

LCO 3.8.1 The following AC electrical sources shall be OPERABLE:

a. Two qualified circuits between the offsite transmission network and the onsite Class 1E AC Electrical Power Distribution System; and

b. Two diesel generators (DGs) each capable of supplying one train of the onsite Class 1E AC Electrical Power Distribution System.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required offsite circuit inoperable.	A.1 Perform SR 3.8.1.1 for required OPERABLE offsite circuit. AND A.2 Restore required offsite circuit to OPERABLE status.	1 hour AND Once per 8 hours thereafter -----NOTE------- The Completion Time may be extended to 10 days once per train prior to 7/01/2012 to perform maintenance. ---------- 72 hours AND 17 days from discovery of failure to meet LCO

(continued)

Attachment 6

Proposed Technical Specifications Bases Markup Pages, Unit 2

(Typical for both Units 2 and 3 - For information only)

NOTE:
Bases change B10-004 is on pages B 3.8-7 and B 3.8-7a. Bases pages B 3.8-1 through B 3.8-6 are included for reference.

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.1 AC Sources – Operating

BASES

BACKGROUND

The Class 1E Electrical Power Distribution System AC sources consist of the offsite power sources (normal preferred and alternate preferred power sources), and the standby (onsite) power sources (Train A and Train B Diesel Generators (DGs)). As required by 10 CFR 50, Appendix A, GDC 17 (Ref. 1), the design of the AC electrical power system provides independence and redundancy to ensure an available source of power to the Engineered Safety Feature (ESF) systems.

The onsite Class 1E AC Distribution System is divided into redundant load groups (trains) so that the loss of any one group does not prevent the minimum safety functions from being performed. Each train has connections to two preferred (offsite) power sources and a single DG.

In Modes 1 through 4, the normal preferred power source (Offsite circuit #1) for each unit is Reserve Auxiliary Transformers XR1 and XR2 for the specific unit. XR1 feeds one 4.16 kV ESF bus (Train A) A04 and XR2 feeds the other 4.16 kV ESF bus (Train B) A06 of the onsite Class 1E AC distribution system for each unit. The alternate preferred power source (Offsite circuit #2) is the other unit's Reserve Auxiliary Transformers XR1 and XR2, or the other unit's Unit Auxiliary Transformer XU1 through the train oriented 4.16 kV ESF bus cross-ties between the two units. The 4.16 kV ESF bus alignment in the other unit determines which transformer(s) serves as the alternate preferred power source. If the 4.16 kV ESF bus in the other unit is aligned to the Reserve Auxiliary Transformer (XR1 or XR2), then that transformer is the required alternate preferred power source. If the 4.16 kV ESF bus in the other unit is aligned to the Unit Auxiliary Transformer (XU1), then that transformer is the required alternate preferred power source.

In Modes 5 and 6, when the main generator is not operating, each Class 1E Switchgear can be connected to a third preferred power source via the Unit Auxiliary Transformers by manually removing the links in the isolated phase bus between the Main Generator and the Main

(continued)

BASES (continued)

BACKGROUND (continued)

transformer of the non-operating (Modes 5 and 6) unit and closing the 4.16 kV circuit breaker to the Unit Auxiliary transformer of the same unit. In this alignment, the Unit Auxiliary Transformer (XU1) serves as the required normal preferred power source of the unit and the alternate preferred power source for the ESF bus(es) in the other unit.

An offsite circuit includes all breakers, transformers, switches, interrupting devices, cabling, and controls required to transmit power from the offsite transmission network to the onsite Class 1E ESF bus or buses.

During a Safety Injection Actuation Signal (SIAS), certain required ESF loads are connected to the ESF buses in a predetermined sequence. Within 77 seconds after the SIAS, all automatic and permanently connected loads needed to recover the unit or maintain it in a safe condition are placed in service.

The standby (onsite) power source for each 4.16 kV ESF bus is a dedicated DG. DGs G002 and G003 are dedicated to ESF buses A04 and A06, respectively. A DG starts automatically on a SIAS (i.e., low pressurizer pressure or high containment pressure signals) or on an ESF bus degraded voltage or undervoltage signal. After the DG has started, it will automatically connect to its respective bus after the offsite power supply breaker is tripped as a consequence of ESF bus undervoltage or degraded voltage, independent of or coincident with a SIAS signal. The DGs will also start and operate in the standby mode without tying to the ESF bus on an SIAS alone. Following the trip of offsite power, an undervoltage signal strips selected loads from the ESF bus. When the DG is tied to the ESF bus, the permanently connected loads are energized. If one or more ESF actuation signals are present, ESF loads are then sequentially connected to their respective ESF bus by the programmed time interval load sequence. The sequencing logic controls the permissive and starting signals to motor breakers to prevent overloading the DG by automatic load application.

In the event of a loss of preferred power in conjunction with one or more ESF actuation signals, the ESF electrical loads are automatically connected to the DGs in sufficient time to provide for safe reactor shutdown and to mitigate the consequences of a Design Basis Accident (DBA) such as a loss of coolant accident (LOCA).

(continued)

BASES (continued)

BACKGROUND (continued)

Ratings for Train A and Train B DGs satisfy the requirements of Regulatory Guide 1.9 (Ref. 3). The continuous service rating of each DG is 4700 kW with 10% overload permissible for up to 2 hours in any 24 hour period. However, for standby class of service like the San Onofre DGs the manufacturer allows specific overload values up to 116.1% of continuous duty rating based on the total hours the DG is operated per year. The ESF loads that are powered from the 4.16 kV ESF buses are listed in Reference 2.

APPLICABLE SAFETY ANALYSES

The initial conditions of DBA and transient analyses in the UFSAR, Chapter 6 (Ref. 4) and Chapter 15 (Ref. 5), assume ESF systems are OPERABLE. The AC electrical power sources are designed to provide sufficient capacity, capability, redundancy, and reliability to ensure the availability of necessary power to ESF systems so that the fuel, Reactor Coolant System (RCS), and containment design limits are not exceeded. These limits are discussed in more detail in the Bases for Section 3.2, Power Distribution Limits; Section 3.4, Reactor Coolant System (RCS); and Section 3.6, Containment Systems.

The OPERABILITY of the AC electrical power sources is consistent with the initial assumptions of the accident analyses and is based upon meeting the design basis of the unit. This results in maintaining at least one train of the onsite or offsite AC sources OPERABLE during accident conditions in the event of:

a. An assumed loss of all offsite power or all onsite AC power; and

b. A worst case single failure.

The AC sources satisfy Criterion 3 of NRC Policy Statement.

LCO

Two qualified circuits between the offsite transmission network and the onsite Class 1E Electrical Power Distribution System and separate and independent DGs for each train ensure availability of the required power to shut down the reactor and maintain it in a safe shutdown condition after an Anticipated Operational Occurrence (AOO) or a postulated DBA.

(continued)

BASES (continued)

LCO (continued)

Qualified offsite circuits are those that are described in the UFSAR and are part of the licensing basis for the unit. Required offsite circuits are those circuits that are credited and required to be Operable per LCO 3.8.1.

Each required offsite circuit must be capable of maintaining frequency and voltage within specified limits, and accepting required loads during an accident, while connected to the ESF buses.

In Modes 1 through 4, the normal preferred power source (Offsite circuit #1) for each unit is Reserve Auxiliary Transformers XR1 and XR2 for the specific unit. XR1 feeds one 4.16 kV ESF bus (Train A) A04 and XR2 feeds the other 4.16 kV ESF bus (Train B) A06 of the onsite Class 1E AC distribution system for each unit. The alternate preferred power source (Offsite circuit #2) is the other unit's Reserve Auxiliary Transformers XR1 and XR2, or the other unit's Unit Auxiliary Transformer XU1 through the train oriented 4.16 kV ESF bus cross-ties between the two units. The 4.16 kV ESF bus alignment in the other unit determines which transformer(s) serves as the alternate preferred power source. If the 4.16 kV ESF bus in the other unit is aligned to the Reserve Auxiliary Transformer (XR1 or XR2), then that transformer is the required alternate preferred power source. If the 4.16 kV ESF bus in the other unit is aligned to the Unit Auxiliary Transformer (XU1), then that transformer is the required alternate preferred power source.

In Modes 5 and 6, when the main generator is not operating, each Class 1E Switchgear can be connected to a third preferred power source via the Unit Auxiliary Transformers by manually removing the links in the isolated phase bus between the Main Generator and the Main transformer of the non-operating (Modes 5 and 6) unit and closing the 4.16 kV circuit breaker to the Unit Auxiliary transformer of the same unit. In this alignment, the Unit Auxiliary Transformer (XU1) serves as the required normal preferred power source of the unit and the alternate preferred power source for the ESF bus(es) in the other unit.

Each DG must be capable of starting, accelerating to within specified frequency and voltage limits, connecting to its respective ESF bus on detection of bus undervoltage, and resetting the 4.16 kV bus undervoltage relay logic, in less than or equal to 10 seconds. Each DG must also be capable of accepting required loads within the assumed loading

(continued)

BASES (continued)

LCO (continued)

sequence intervals, and continue to operate until offsite power can be restored to the ESF buses. These capabilities are required to be met from a variety of initial conditions such as: DG in standby with the engine hot, DG in standby with the engine at ambient conditions, and DG operating in a parallel test mode. A DG is considered already operating if the DG voltage is $\geq$ 4161 and $\leq$ 4576 volts and the frequency is $\geq$ 59.7 and $\leq$ 61.2 Hz.

Proper sequencing of loads, including tripping of nonessential loads on a SIAS, is a required function for DG OPERABILITY.

The AC sources in one train must be separate and independent (to the extent possible) of the AC sources in the other train. For the DGs, separation and independence are complete.

For the offsite AC sources, separation and independence are to the extent practical. A circuit may be connected to more than one ESF bus, with transfer capability to the other circuit, and not violate separation criteria.

APPLICABILITY

The AC sources and associated automatic load sequence timers are required to be OPERABLE in MODES 1, 2, 3, and 4 to ensure that:

a. Acceptable fuel design limits and reactor coolant pressure boundary limits are not exceeded as a result of AOOs or abnormal transients; and

b. Adequate core cooling is provided and containment OPERABILITY and other vital functions are maintained in the event of a postulated DBA.

The AC power requirements for MODES 5 and 6 are covered in LCO 3.8.2, "AC Sources – Shutdown."

A Note prohibits the application of LCO 3.0.4b to an inoperable DG. There is an increased risk associated with entering a MODE or other specified condition in the Applicability with an inoperable DG and the provisions of LCO 3.0.4.b, which allow entry into a MODE or other specified condition in the Applicability with the LCO not met after performance of a risk assessment addressing inoperable systems and components, should not be applied in the circumstance.

ACTIONS

A.1

To ensure a highly reliable power source remains with the one offsite circuit inoperable, it is necessary to verify the OPERABILITY of the remaining required offsite circuit on

(continued)

BASES (continued)

ACTIONS

A.1 (continued)

a more frequent basis. Since the Required Action only specifies "perform," a failure of SR 3.8.1.1 acceptance criteria does not result in a Required Action not met. However, if a second required circuit fails SR 3.8.1.1, the second offsite circuit is inoperable, and Condition C, for two offsite circuits inoperable, is entered.

A.2

According to Regulatory Guide 1.93 (Ref. 6), operation may continue in Condition A for a period that should not exceed 72 hours. With one offsite circuit inoperable, the reliability of the offsite system is degraded, and the potential for a loss of offsite power is increased, with attendant potential for a challenge to the unit safety systems. In this Condition, however, the remaining OPERABLE offsite circuit and DGs are adequate to supply electrical power to the onsite Class 1E Distribution System.

The 72 hour Completion Time takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period.

The second Completion Time for Required Action A.2 establishes a limit on the maximum time allowed for any combination of required AC power sources to be inoperable during any single contiguous occurrence of failing to meet the LCO. If Condition A is entered while, for instance, a DG is inoperable, and that DG is subsequently returned OPERABLE, the LCO may already have been not met for up to 14 days. This could lead to a total of 17 days, since initial failure to meet the LCO, to restore the offsite circuit. At this time, a DG could again become inoperable, the circuit restored OPERABLE, and an additional 14 days (for a total of 31 days) allowed prior to complete restoration of the LCO. The 17 day Completion Time provides a limit on the time allowed in a specified condition after discovery of failure to meet the LCO. This limit is considered reasonable for situations in which Conditions A and B are entered concurrently. The "AND" connector between the 72 hour and 17 day Completion Time means that both Completion Times apply simultaneously, and the more restrictive Completion Time must be met.

(continued)

BASES (continued)

ACTIONS

A.2 (continued)

As in Required Action A.2, the Completion Time allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." This will result in establishing the "time zero" at the time that the LCO was initially not met, instead of at the time Condition A was entered.

An extended Completion Time (CT) for required Action A.2 provides 1 10-day one time outage per train to allow for maintenance to be performed. This CT option is for use prior to 24:00 (midnight) on 6/30/2012 and is subject to the following compensatory measures being established for both Units 2 and 3 in accordance with the associated NRC amendent for this option.

Online Unit Compensatory Measures (MODES 1 to 4)

- Protect the available offsite source: via switchyard barriers and 4.16 kV cross-tie breaker barriers.
- Protect both onsite sources - Perform Surveillances on the operating unit EDGs prior to entering Action Statement, and protect the available switchgear room.
- Ensure the protected train is the train with the OPERABLE 4.16 kV cross-tie.
- Ensure affected train common equipment (1E 480 VAC buses, emergency chillers, control room emergency cooling units) are aligned to the on-line unit.
- Protect all 3 AFW pumps.
- Protect switchgear room normal HVAC cooling unit and exhaust fan.
- Do not allow any switchyard work, or train work on the protected train.

Outage Unit Compensatory Measures

- Protect the available train offsite source: via swithyard barriers and 4.16 kV cross-tie breaker barriers.
- Protect the available train onsite source, EDG and 4.16 kV bus.
- Protect all available train safety function equipment CCW (component cooling water), SWC (saltwater cooling), SDC (shutdown cooling), and SFP (Spent Fuel Pool) cooling.

(continued)

BASES (continued)

ACTIONS

A.2 (continued)

- Do not allow any work in the switchyard or on the protected electric power buses that are providing safety function fulfillment.
- Scheduling: Work the supply cubicles and cross-tie cubicle bottle replacements first, allowing for a quicker emergency return to service.
- Develop a plan to effect an emergency return to service, if required to support the operating unit.
- Bus outages are to be performed during the core offload window, when fuel is removed from the reactor vessel.

The following compensatory measures apply to the Unit 3 Cycle 16 refueling only since Unit 3 steam generator replacement is planned for this outage:

- Rigging activities to be limited to one end of the steam generator replacement outside lift system (OLS) to limit potential impact to Unit 3 Train A diesel generator cables located underground near the containment equipment hatch.
- OLS construction, use, and removal to be limited to specific outage windows to reduce risk to the Unit 3 Train A diesel generator cables.
- SONGS NUREG-0612 heavy loads procedural requirements are to be implemented for both the OLS and the service crane to ensure safe load paths are followed, or safe shutdown equipment is taken out of service, during the rigging activity.
- A Unit 3 Cycle 16 shutdown qualitative risk assessment to be performed to provide qualitative risk management actions to demonstrate acceptable outage risk during construction, use, and deconstruction of the OLS.
- Work controls to be in place to lay the service crane boom down prior to severe weather.
- There are to be no load movements by the service crane over the switchyard.

B.1

To ensure a highly reliable power source remains when one of the required DGs is inoperable, it is necessary to verify the availability of the offsite circuits on a more frequent basis. Since the Required Action only specifies "perform," a failure of SR 3.8.1.1 acceptance criteria does not result in a Required Action being not met. However, if a circuit fails to pass SR 3.8.1.1, it is inoperable. Upon offsite circuit inoperability, additional Conditions and Required Actions must then be entered.

(continued)

BASES (continued)

ACTIONS

B.2

Required Action B.2 is intended to provide assurance that a loss of offsite power, during the period that a DG is inoperable, does not result in a complete loss of safety function of critical systems. These features are designed with redundant safety related trains. This includes motor driven auxiliary feedwater pumps. Single train systems, such as turbine driven auxiliary feedwater pumps, are not included. Redundant required feature failures consist of inoperable features associated with a train, redundant to the train that has an inoperable DG.

Reference 18 contains information implying that for a component or system to be considered a "required feature," it must meet **ALL** the following criteria:

- perform a safety function;require electrical power from a class 1E power source to perform its safety function (see Note 1);
- be credited to perform the safety function in loss of offsite power events;
- be redundant to a system or component in the opposite train that performs the same safety function;
- fail in a position on loss of electrical power that does not fulfill the safety function.

Note 1: Systems or components that are powered from a Class 1E battery or inverter are "required features" ONLY if credited to perform their safety function at a time in the event that is longer than the UFSAR assumed life of the associated class 1E battery, AND all other above criteria are met (for example, redundant post accident monitoring instrumentation and atmospheric dump valves).

The Completion Time for Required Action B.2 is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." In this Required Action, the Completion Time only begins on discovery that both:

(continued)

Attachment 7

Figure III-1 - 1E 4.16kV Electrical Distribution System

FIGURE III-1: 1E 4.16 kV ELECTRICAL DISTRIBUTION SYSTEM

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