

10 CFR 50.73(a)(2)(i)(B)

December 13, 2010

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

Subject: **Docket Nos. 50-361 and 50-362**  
**LER 2010-006-00, Breakers Left in Non-Seismically Qualified Condition Result**  
**in Condition Prohibited by Technical Specifications**  
**San Onofre Nuclear Generating Station (SONGS), Units 2 and 3**

Dear Sir or Madam:

Attached is Licensee Event Report (LER) 2010-006-00, which is being submitted in accordance with 10 CFR 50.73(a)(2)(i)(B).

This letter does not contain any commitments. If you have any questions regarding the attached report, please call Ryan Treadway at 949-368-9985.

Sincerely,



Attachment: LER 2010-006-00

cc: E.E. Collins, Regional Administrator, NRC Region IV  
R. Hall, NRC Project Manager, SONGS Units 2 and 3  
G.G. Warnick, NRC Senior Resident Inspector, SONGS Units 2 and 3

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<b>NRC FORM 366</b> (10-2010)	<b>U.S. NUCLEAR REGULATORY COMMISSION</b>	APPROVED BY OMB: NO. 3150-0104	EXPIRES: 10/31/2013
<h2 style="margin: 0;">LICENSEE EVENT REPORT (LER)</h2>		Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA/Privacy Section (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects.resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.	

<b>1. FACILITY NAME</b> San Onofre Nuclear Generating Station (SONGS) Unit 2	<b>2. DOCKET NUMBER</b> 05000361	<b>3. PAGE</b> 1 of 5
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**4. TITLE**  
Breakers Left in Non-Seismically Qualified Condition Result in Condition Prohibited by Technical Specifications

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
10	13	2010	2010-006-00			12	13	2010	SONGS Unit 3	05000362
									FACILITY NAME	DOCKET NUMBER
									N/A	N/A

<b>9. OPERATING MODE</b>  1	<b>11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§:</b> <i>(Check all that apply)</i>			
<b>10. POWER LEVEL</b>  94.8	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)
	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)
	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)
	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)
<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> OTHER	
<input type="checkbox"/> 20.2203(a)(2)(vi)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A	

**12. LICENSEE CONTACT FOR THIS LER**

NAME Douglas R. Bauder, Site Vice President and Station Manager	TELEPHONE NUMBER (Include Area Code) 949-368-9275
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**13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT**

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
		N/A					N/A		

<b>14. SUPPLEMENTAL REPORT EXPECTED</b>	<b>15. EXPECTED SUBMISSION DATE</b>	MONTH	DAY	YEAR
<input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO			

**ABSTRACT** (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On 10/13/10 an engineering evaluation determined that San Onofre Nuclear Generating Station Unit 2 and 3 had left electrical circuit breakers racked out in a non-seismically qualified condition that resulted in an inoperable 4kv bus, which is a condition prohibited by Technical Specifications (TS). From 09/02/10 to 09/16/10, the Unit 3 Train A Salt Water Cooling Pump breaker had not been latched in a seismically restrained position in its cubicle. Although the breaker was not in service during the time of the deficiency, a significant seismic event could cause cubicle door failure, releasing the breaker, potentially impacting relays for the bus 3A04 feeder breaker, rendering the Train A Class 1E 4kV bus (3A04) inoperable. Since Unit 3 was operating in Mode 1 during the deficiency, the TS Limiting Condition for Operation action statements were not met for one required offsite circuit inoperable and one AC power distribution system inoperable. On 10/04/10 a similar event occurred with the Unit 2 Train A High Pressure Safety Injection Pump power supply breaker. Unit 2 was operating in Mode 1 and the breaker was not in service at the time of the deficiency. The condition was identified and corrected within 10 hours of the breaker being placed in a non-seismic position.

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### A. REPORTABLE OCCURRENCE

On October 13, 2010, an engineering evaluation determined that San Onofre Nuclear Generating Station (SONGS) Unit 2 and 3 had left electrical circuit breakers racked out in a non-seismically qualified condition that resulted in an inoperable 4kv bus [BU], which is a condition prohibited by Technical Specifications (TS).

The Unit 3 deficiency existed from September 2 to September 16, 2010, when the supply breaker [BKR] for the Unit 3 Train A Saltwater Cooling (SWC) [BS] pumps was not in its seismic position. The event occurred because the breaker had not been latched in a seismically restrained position within its cubicle during SWC pump transfer operations on September 2, 2010. Although the subject breaker was not in service during the time of the deficiency, a significant seismic event could cause cubicle door failure, ejecting the loose breaker, potentially impacting the relays for the bus 3A04 feeder breaker from the Reserve Auxiliary Transformer, and rendering Train A Class 1E 4kv bus (3A04) inoperable. Bus 3A04 distributes power to safety-related loads required for emergency shutdown and cooldown as required by TS Limiting Condition for Operation (LCO) 3.8.9, Distribution Systems - Operating, and distributes power from one of the two qualified circuits for the Class1E AC Electrical Power Distribution System [EK] as required by TS LCO 3.8.1.a, AC Sources - Operating, in operating Modes 1 through 4. The Train B Class 1E 4kv bus (3B04) was available and all loads were operable during the time the Unit 3 Train A SWC pump breaker was racked out and left in the incorrect position. Since Unit 3 was operating in Mode 1 during the approximate 14-day period the deficiency existed, the TS LCO 3.8.1A and LCO 3.8.9A required action/completion times were not met.

The engineering evaluation also determined that a similar condition with the Unit 2 Train A High Pressure Safety Injection (HPSI) [BQ] Pump power supply breaker could have also resulted in an inoperable 4kv bus during a seismic event. This condition occurred on October 4, 2010, when Unit 2 was in operating Mode 1 and the breaker was not in service. The deficiency was corrected within 10 hours of the breaker being placed in a non-seismic condition. The breaker, cubicle, conditions, and consequences are similar to the Unit 3 event described above.

These two events are reportable pursuant to 10 CFR 50.73(a)(2)(i)(B).

### B. INITIAL CONDITIONS

At the time of discovery on October 13, 2010, SONGS Unit 3 was in a refueling outage with the plant in Mode 5 (cold shutdown). During the time the deficiency existed from September 2 through September 16, 2010, Unit 3 was operating in Mode 1 at approximately 99 percent power.

At the time of discovery on October 13, 2010, SONGS Unit 2 was in Mode 1 with reactor power at approximately 94.8 percent power. During the time the deficiency existed on October 4, 2010, Unit 2 was operating in Mode 1 at approximately 94.25 percent power. The reduced power condition was due to a failed heater drain pump motor not associated with this event.

There were no additional inoperable structures, systems, or components at the start of the event that contributed to the events.

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**C. DESCRIPTION OF OCCURRENCE**

On October 13, 2010, an engineering evaluation determined that SONGS Unit 2 and 3 had left electrical circuit breakers racked out in a non-seismically qualified condition that resulted in an inoperable 4kv bus, which is a condition prohibited by TS. The Unit 3 condition bounds the Unit 2 condition due to duration that the deficiencies existed, as described below

The Unit 3 deficiency existed from September 2 to September 16, 2010, when the supply breaker for the Unit 3 Train A SWC pumps was not latched in its seismic position. During a seismic event, this condition could result in damage to the breaker or cubicle, and the breaker could potentially impact and damage equipment in the surrounding area including equipment necessary to shut down the reactor and maintain it in a safe shutdown condition.

On September 2, 2010, while transferring the two Unit 3 Train A SWC pumps, the 4160-volt Supply Breaker 3A0411 for the SWC Pump 3P307 being taken out of service was not latched in the seismic position when racked out during pump transfer operations. The breaker had been rolled out of its cubicle to discharge the charging springs, but when the breaker was rolled back into the cubicle, the racking cam was not engaged for seismic restraint resulting in the breaker not being properly latched in the seismically restrained disconnected position. This was contrary to the procedure in use at the time which requires full engagement of the racking mechanism latch to prevent possible damage to the breaker and cubicle during a seismic event. By not fully engaging the racking cam for seismic restraint, the breaker was capable of movement out of the breaker cubicle during a seismic event. This condition was not recognized for approximately fourteen days. No manual action is credited in mitigating this event because no operations or maintenance activities were being performed in the area of the 4kv bus during this time.

Subsequent investigation determined the breaker was not seismically restrained in the front-back direction in the cubicle, and movement of the breaker during a design basis earthquake (DBE) event may cause cubicle door failure. The breaker could be released from the cabinet, since the hinges on the door were not adequate to restrain the breaker. It is postulated that the unrestrained 750-pound breaker would have impacted and damaged the cubicle doors directly across from the breaker, potentially impacting the overcurrent relays for the bus 3A04 feeder breaker from the Reserve Auxiliary Transformer, thus rendering the Train A Class 1E 4kv bus (3A04) inoperable. Bus 3A04 distributes power to safety-related loads required for emergency shutdown and cooldown as required by TS LCO 3.8.9, and distributes power from one of the two qualified circuits for the Class 1E AC Electrical Power Distribution System required by TS LCO 3.8.1.a in operating Modes 1 through 4. Since Unit 3 was operating in Mode 1 during the approximate 14-day period the deficiency existed, the TS LCO action statements were not met for one required offsite circuit inoperable and one AC power distribution system inoperable, placing the plant in a condition prohibited by TS.

The deficient condition was identified during performance of a SWC pump transfer on September 16, 2010. Upon recognition of the deficiency, the breaker was racked-in for service and placed in the closed (seismic) position.

Subsequently, on October 4, 2010, a similar event occurred with the SONGS Unit 2 Train A HPSI Pump supply breaker 2A0409 not being properly latched in the seismically restrained disconnected position,

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resulting in similar consequences (i.e., potentially rendering the Unit 2 Class 1E 4kV bus inoperable). Unit 2 was in operating Mode 1 and the breaker was not in service at the time of the deficiency. The condition was identified during operator rounds and corrected within 10 hours of the breaker being placed in a non-seismic position.

#### D. APPARENT CAUSE

The apparent cause of these events is related to human performance deficiencies including inadequate pre-job brief, inadequate self-checking, and inadequate procedure usage and adherence. Contributing causes included procedural weakness related to concurrent or independent verification of critical steps (e.g., breaker latched in seismic position). A root cause evaluation is being performed addressing both Unit 2 and 3 events.

#### E. CORRECTIVE ACTIONS

Immediate Corrective Actions - Upon identifying the Unit 3 condition on September 16, 2010, the SWC Pump supply breaker was properly racked-in and closed. A walkdown of safety-related 4kV bus 3A04 verified that all racked-out breakers were seismically restrained. Nuclear Notification 201113611 was generated to evaluate the Unit 3 condition. The Unit 2 condition with Train A HPSI Pump supply breaker was identified and corrected on October 4, 2010. Nuclear Notification 201138580 was generated to evaluate the Unit 2 condition. Walkdowns were performed for all safety-related and nonsafety-related 4kV buses on Units 2 and 3 to verify that all racked-out breakers were seismically restrained. The steps for proper racking of such breakers, including verification of the racking cam for seismic restraint, existed in the continuous-use procedures effective at the time of the events. Interim corrective actions included coaching the individuals involved on how to adequately perform the procedure, and revising the procedure to require an independent verification to ensure a breaker left in the disconnect position was properly latched and seismically restrained.

Long Term Corrective Actions - A Root Cause Evaluation (RCE) is in progress addressing both events. The RCE will address additional corrective actions as necessary to prevent recurrence of similar events.

#### F. SAFETY ASSESSMENT

There was no actual safety significance since there was no seismic event and the subject breakers were not in service during the time the deficient conditions existed. In terms of potential safety significance, it is postulated that during a DBE, movement of either Unit 2 or 3 supply breaker within the cabinet would cause cabinet door failure releasing the breaker. The resulting impact and damage from the breaker renders the respective safety-related 4kv bus inoperable, placing the plant in a condition prohibited by TS.

The incremental core damage probability (ICDP) and incremental large early release probability (ILERP) due to the potential impact of the seismically unrestrained Unit 3 SWC Pump supply breaker 3A0411 following a seismic event are calculated to be  $5.3E-8$  and  $3.6E-9$ , respectively. This is a very small risk increase mainly due to the seismic ruggedness of breaker 3A0411 and the short duration the breaker was seismically unrestrained (13.7 days). The seismically unrestrained Unit 2 HPSI Pump supply breaker 2A0409 was determined to have the same ICDF and ILERF as Unit 3 SWC Pump supply breaker 3A0411.

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Since the unrestrained duration of breaker 2A0409 was much shorter (10 hours) than that of breaker 3A0411, the ICDP and ILERP due to the potential impact of the seismically unrestrained Unit 2 breaker 2A0409 following a seismic event are bounded by those calculated for the Unit 3 breaker 3A0411.

**G. ADDITIONAL INFORMATION**

Previous Similar Events - There have not been any similar events in the past three years at SONGS with the same underlying cause.