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May 23, 2000

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Subject: **Docket Nos. 50-361 and 50-362**
30-Day Report
Licensee Event Report No. 2000-005
San Onofre Nuclear Generating Station, Units 2 and 3

Gentlemen:

This submittal provides a 30-day Licensee Event Report (LER) for an occurrence where the Control Room Emergency Air Cleanup System did not fully meet its applicable design basis. While this occurrence is applicable to both Units 2 and 3, a single report for Unit 2 is being submitted in accordance with Section 5.2.3(8) of NUREG-1022, Revision 1. Neither the health nor the safety of plant personnel or the public was affected by this occurrence.

Any actions listed are intended to ensure continued compliance with existing commitments as discussed in applicable licensing documents; this LER contains no new commitments. If you require any additional information, please so advise.

Sincerely,

Attachment: LER No. 2000-005

cc: E. W. Merschoff, Regional Administrator, NRC Region IV
J. A. Sloan, NRC Senior Resident Inspector, San Onofre Units 2 & 3

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NRC FORM 366 (MM-YYYY) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES MM/DD/YYYY

Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Information and Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0104), Office of Management and Budget, Washington, DC 20503. If a document 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.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
San Onofre Nuclear Generation Station (SONGS) Unit 2	05000-361	1 of 4

TITLE (4)

Electrical Power Alignment May Place CREACUS Outside Design Basis

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
									SONGS Unit 3	05000-362
4	24	2000	2000	-- 05 --	00	5	23	2000	FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
POWER LEVEL (10)	100		20.2201(b)		20.2203(a)(2)(v)		50.73(a)(2)(i)		50.73(a)(2)(viii)
			20.2203(a)(1)		20.2203(a)(3)(i)	X	50.73(a)(2)(ii)		50.73(a)(2)(x)
			20.2203(a)(2)(i)		20.2203(a)(3)(ii)		50.73(a)(2)(iii)		73.71
			20.2203(a)(2)(ii)		20.2203(a)(4)		50.73(a)(2)(iv)		OTHER
			20.2203(a)(2)(iii)		50.36(c)(1)		50.73(a)(2)(v)		Specify in Abstract below or in NRC Form 366A
			20.2203(a)(2)(iv)		50.36(c)(2)		50.73(a)(2)(vii)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
R. W. Krieger, Vice President, Nuclear Operations	949-368-6255

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

SUPPLEMENTAL REPORT EXPECTED (14)				EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
	YES (If yes, complete EXPECTED SUBMISSION DATE).	X	NO				

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On April 20, 2000, in response to questions raised during the NRC Safety System Design and Functional Inspection, SCE realized that an interlock (intended to prevent backflow of unfiltered air into the control room) will not function as intended unless both the supply fan and recirculation fan are powered from the same Unit.

Following a review of plant operating records, on April 24,2000 (event date) SCE confirmed that there have been several instances in the past where both fans in a CREACUS train were not aligned to the same unit's ESF bus. As a result, one ventilation supply fan could have potentially introduced more than 10 cfm of unfiltered outside air into the control room during a postulated design basis event. At the time of discovery, the supply and recirculation units of each CREACUS train were aligned to the same power supply. Therefore, SCE is reporting this condition in accordance with 10 CFR 50.73(a)(2)(ii)(B) as a condition that was outside the design basis of the plant.

The condition was caused by a design error by a contract engineering firm. When first identified, SCE immediately verified that the supply and re-circulation fans were aligned to the same unit supply bus in each CREACUS train. SCE also implemented an operating restriction to require that the fan alignment be maintained.

The condition reported herein was evaluated by SCE as GREEN using the latest draft of the Reactor Safety Significance Determination Process (SDP).

	Unit 2	Unit 3
Reactor Vendor:	Combustion Engineering	Combustion Engineering
Mode:	Mode 1 – Power Operation	Mode 1 – Power Operation
Power:	99.85 percent	99.91 percent
Temperature:	538.2 degrees F	538.2 degrees F
Pressure:	2250 psia	2259 psia

Background:

The control room (CR) ventilation system is a common system for Unit 2 and 3 and consists of both normal and emergency systems. The normal system maintains a slight positive pressure and recirculates cooled filtered air to the CR. The control room emergency air cleanup system (CREACUS) {VI} is composed of two redundant trains and maintains the control room atmosphere suitable for prolonged occupancy throughout the duration of postulated accidents.

CREACUS has two 100 percent capacity trains - each train has a ventilation supply fan (A206 and A207) that provides outside air to the intake of the train-associated emergency air conditioning re-circulation fan (E418 and E419). Each CREACUS train can be isolated from the outside air by closing of the inlet and exhaust dampers from the emergency ventilation supply fan unit.

Each CREACUS train can be powered from either Unit 2 or from Unit 3. The electrical system also permits different components of the same CREACUS train to be powered from different nuclear Units (power supplies are kirk-key interlocked). For example, a supply fan (A206) can be powered from Unit 2 and the recirculation fan in the same train (E419) can be powered from Unit 3.

Upon receipt of a CR isolation signal (CRIS), actuated by a Safety Injection Actuation Signal (SIAS) or a normal supply air duct high radiation signal, CREACUS automatically terminates the normal system and shifts to the emergency mode of operation. Transfer to the emergency mode or to the isolation mode may also be initiated manually from the control room.

The updated final safety analysis report (UFSAR) Appendices 15B and 15.10B detail the dose models used to evaluate the environmental consequences of postulated accidents; Tables 15B-5 and 15.10B-1 provide the parameters used for evaluation of control room doses. The dose analysis assumes two trains of CREACUS are automatically placed into operation at the beginning of an event (A207 and E418 plus A206 and E419) and that eight hours later, one train is manually turned off. The control room dose analysis assumes unfiltered leakage into the control room to be 10 CFM.

In August, 1985, SCE recognized that if both CREACUS trains are operating and one recirculation fan stops running, radioactivity concentration in the control room could be higher than previously evaluated. In this configuration, approximately one half of the total intake air will backflow, without adequate filtration, via the return duct to the recirculation filtration fan unit that is not operating, into the control room envelope.

In July of 1986, an interlock was added to prevent a supply fan from operating unless its recirculation fan was also in operation.

Description of the event:

On April 20, 2000, in response to questions raised during the NRC Safety System Design and Functional Inspection, SCE realized that the interlock will not function as intended unless both the supply fan and recirculation fan are powered from the same Unit.

Following a review of plant operating records, on April 24,2000 (event date) SCE confirmed that there have been several instances in the past where both fans in a CREACUS train were not aligned to the same unit's ESF bus. As a result, one ventilation supply fan could have potentially introduced more than 10 cfm of unfiltered outside air into the control room during a postulated design basis event. At the time of discovery, the supply and recirculation units of each CREACUS train were aligned to the same power supply. Therefore, SCE is reporting this condition in accordance with 10 CFR 50.73(a)(2)(ii)(B) as a condition that was outside the design basis of the plant.

The Toxic Gas Isolation function of CREACUS is unaffected by this condition. A Toxic Gas Isolation Signal (TGIS) is actuated by one of the monitors in the air duct to the normal re-circulation air conditioning system. When actuated, TGIS closes the discharge and suction dampers, turns off the normal re-circulation air conditioning system, and starts the emergency air conditioning fans automatically. The initiation of the emergency fans places the CREACUS system in the isolation mode.

Cause of the Event:

The condition was caused by a design error by a contract engineering firm. When designing the interlock, engineers (non-utility, non-licensed) used an existing differential pressure sensor to derive airflow through the recirculating unit. Upon low derived airflow, the interlock will shut off the supply fan. However, the designers did not recognize that if differential pressure decreases to below the sensor's reset point (at lowered flow rates), the interlock will reset and allow the supply fan to restart. Although a recirculating fan breaker interlock would have stopped the associated supply fan in the event the loss of a recirculation fan, the interlock is ineffective for a loss of 480 volt bus power which does not open the recirculating fan supply breaker if the supply fan power is provided by the opposite unit. Because this error occurred more than 14 years ago, SCE did not determine the root cause of this oversight.

Corrective Actions:

When first identified, SCE immediately verified that the supply and re-circulation fans were aligned to the same unit supply bus in each CREACUS train. SCE also implemented an operating restriction to require that the fan alignment be maintained. On April 25, 2000, procedures were revised to control the required alignment.

Safety Significance:

Each emergency ventilation supply fan unit and emergency air conditioning re-circulation fan unit contain charcoal and HEPA filters for removal of airborne radioactivity. The dose analysis does not credit emergency ventilation supply unit for radioiodine and radio-particulate removal because it does not include a HEPA filter after the charcoal filter and the residence time is shorter than required by Regulatory Guide 1.52. Therefore, only the emergency air conditioning re-circulation filtration fan units are credited in the control room dose analysis. The actual delivery of radioactivity to the control room area would be greatly reduced from the concentration assumed to be present in outside air by the non-credited charcoal filters.

SCE has evaluated the safety significance of this event using site specific criteria including IPEEE considerations. This condition would not have impacted the ability of the control room operators to take appropriate accident mitigation actions. SCE concludes that there is no increase in calculated Core Damage Frequency and Large Early Release Frequency and this occurrence would be categorized as "Green" using the latest draft of the Reactor Safety Significance Determination Process (SDP).

Additional Information:

In the last two years, there were three reports made involving CREACUS:

1. LER 1998-013-01, on September 15, 1998, reported a failure to include 10 cfm unfiltered air in-leakage for the control room dose calculation and an incorrect translation of a calculation valve leakage assumption into the inservice test program.

2. LER 1998-024-00, on December 9, 1998, reported an incorrect illustration of ventilation dampers on the piping and instrumentation diagram drawing caused SCE personnel to inappropriately assess the impact on the CREACUS boundary.

3. LER 2000-003, on May 4, 2000, reported uncapped lines to both normal air conditioning units and worn expansion boots could have caused aggregate unfiltered air in-leakage into the control room in excess of 10 cfm assumed in the control room dose calculation.

Because the condition reported herein predates these LER's, corrective actions for those LER's could not have prevented this occurrence.

Also note that in 1985, SCE did not report the design deficiency when discovered because the 1985 reporting expectations are different than they now exist. In 1985, the accepted industry practice was to report conditions as "outside the design basis" only when the discovered condition affected the principal safety barriers or constituted a condition which was seriously degraded. Following the March 26, 1998, NRC letter to Nine Mile Point Unit 1 (NMP1) from Mr. Joe Callan, SCE changed our reporting practices to require reporting conditions as "outside the design bases" at the component level, rather than at the system level.