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R. W. Krieger
Vice President
Nuclear Generation

February 17, 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. 2000-001
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 design of portions of the Saltwater Cooling System circuits did not fully meet their 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, Rev. 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,

R Waldo for R.W. Krieger

Attachment: LER No. 2000-001

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

P. O. Box 128
San Clemente, CA 92674-0128
949-368-6255
Fax 949-368-6183

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

LICENSEE EVENT REPORT (LER)

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

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.

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
San Onofre Nuclear Generation Station (SONGS) Unit 2 and 3	05000-361	1 of 7

TITLE (4)

Inadequate Design-SWC Pump Control Circuits Do Not Meet Fire Protection 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
01	20	2000	2000	-- 001 --	00	02	17	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 January 20, 2000, at 1431 PST, SCE notified (NRC Log No. 36608) that some cables in the Saltwater Cooling pipe tunnel were missing a portion of their fire wraps required to meet 10CFR50, Appendix R, Section III.G. On January 25, 2000, subsequent engineering investigation determined that a design change was implemented in circa 1987, which was intended to eliminate the need to wrap these cables. However, this design change for the SWC Pump control circuits did not provide an isolation fuse as intended. Consequently, SCE is reporting this condition as outside the design basis of the plant in accordance with 10 CFR 50.73 (a)(2)(ii)(B).

The cause is attributed to design error by a contract engineering firm (non-utility, non-licensed). SCE immediately ensured that an hourly fire watch was posted in the SWC pipe tunnel and in each Unit's SWC pump room. SCE will modify the affected circuits to eliminate the potential vulnerability discussed above.

The condition had minimal safety significance.

	Unit 2	Unit 3
Mode:	1. Power Operation	1. Power Operation
Power:	99.89 percent	99.92 percent
Temperature:	538.5 degrees F	538.4 degrees F
Pressure:	2253 psia	2254 psia

Background:

San Onofre Units 2 and 3 each have a single Salt Water Cooling (SWC) pump room that contains four SWC {BS} pumps {P} as follows:

	Unit 2 SWC Pump Room * (Fire Zone 2-TB-9-148F)	Unit 3 SWC Pump Room * (Fire Zone 3-TB-9-148F)
Train A	2P 112 3P 307	2P 307 3P 112
Train B	2P 113 3P 114	2P 114 3P 113

(*See Figure 2)

This distributed arrangement allows either pump room to provide salt water cooling for either unit. The SWC pump rooms (fire zone 2-TB-9-148F and 3-TB-9-148F) also contain control and power cables {CBL} for the SWC pumps, SWC system valves, and Heating Ventilation and Air Conditioning fans. Each SWC pump room communicates to a piping tunnel (fire zone 2-TB-9-148E), located one level below, through an 8'X8' opening. Redundant cables are routed through the tunnel with Train B cables wrapped with a 1-hour rated barrier.

The fire protection program licensing basis for Units 2 and 3 is the combined requirements of 10 CFR.50, Appendix R, Sections III.G, III.J, and III.O, and the requirements of Appendix A to Branch Technical Position APCSB 9.5-1. As documented in the June 29, 1988 Safety Evaluation Report, a deviation from the requirements of 10CFR50 Appendix R, Section III.G.2 for fire zones 2-TB-9-148F and 3-TB-9-148F was granted. Redundant Safe Shutdown equipment located in these zones is separated by more than 20 feet, but have limited intervening combustibles. Wet pipe sprinkler and detection systems are available in these areas.

Description of the Event:

On January 19, 2000, following a plant walk-down of exposure fire barriers, Southern California Edison (SCE) discovered some cables in the Saltwater Cooling pipe tunnel that appeared to be missing a portion of their fire wraps. After a review of plant documentation, SCE determined that this condition could affect post-fire operation of both Unit 3 Train B SWC pumps. Consequently, on January 20, 2000, at 1400 PST, SCE concluded this condition did not meet the requirements of 10CFR50, Appendix R, Section III.G to ensure one train of safe shutdown equipment remains free of fire damage in the event of a design basis fire. SCE reported this condition to the Nuclear Regulatory Commission (NRC) Operations Center on January 20, 2000 at 1431 PST (NRC Log No. 36608).

Following this initial report, SCE continued to investigate this occurrence and determined that fire wrap was not the method selected to satisfy the requirements of 10CFR50, Appendix R, Section III.G.2 for the identified cable in the SWC pipe tunnel. During 1987 and 1988, SCE was completing plant modifications to ensure compliance with the fire protection program licensing basis. At that time, a design change was implemented to provide the capability to isolate (e.g., via fusing) and bypass the Units 2 and 3 Train B SWC pump control circuits, which was intended to eliminate the need to wrap these cables (the same portions that were discovered "not wrapped" on January 19, 2000).

On January 25, 2000, SCE engineering determined the circa-1987 fire protection design change for the SWC Pump control circuits did not, in fact, provide an isolation fuse {FU} as intended (See Figure 1). As a result, a fire occurring at the location of the CCW heat exchanger discharge valves could cause a ground fault to the power cable of the SWC pump discharge valve solenoid {FSV}. In addition, the fire could cause an electrical fault at the pump interlock circuit that, combined with the discharge valve cable fault, could potentially trip the DC control power breaker {726} to the pump. This in turn would de-energize the pump start circuit and the pump would not be able to start from the second point of control without an additional operator action to first restore the DC control power to the Units 2 and 3 Train B SWC pumps' breakers. Consequently, SCE is reporting this condition as outside the design basis of the plant in accordance with 10 CFR 50.73 (a)(2)(ii)(B).

Cause of the Event:

The design change discussed above was prepared by a contract engineering firm and SCE considers this design error to be attributable to an individual personnel error (non-utility, non-licensed). Due to the passage of time, SCE did not determine the exact cause of the personnel error.

Corrective Action:

- SCE immediately ensured that an hourly fire watch was posted in the SWC pipe tunnel and in each Unit's SWC pump room.

- SCE will modify the affected circuits to eliminate the potential vulnerability discussed above. This will be implemented in accordance with the SONGS' corrective action program.

- As noted above, SCE considers this to be an isolated error by a contract-engineering firm. Additionally, the 1988 re-organization changes that consolidated the design functions and responsibilities within one department and developed comprehensive design basis documentation has appropriately enhanced the quality of engineering design at San Onofre.

Safety Significance:

As discussed below, SCE recognized that: (1) plant procedures were/are in place to allow Operators to manually start a SWC pump if needed, (2) the affected areas were/are protected by fire suppression equipment and fire department personnel, and (3) the probability of a fire is extremely low. Consequently, SCE concluded that the safety significance of this occurrence is minimal.

The SWC pipe tunnel and pump rooms contain very low combustibles (i.e., approximately 2 minutes fire duration for the tunnel, and approximately 6 minutes fire duration for each pump room) consisting mainly of cable insulation in the tunnel, and cable, oil, and grease in the pump rooms. These rooms are protected by ionization fire detection and wet pipe sprinkler systems. In accordance with Site directives/programs, accumulation, and/or introduction of transient combustibles in these areas are controlled. The probability of a fire starting, propagating, and causing damage to redundant SWC system components and cables is low. The availability of fire protection features, combined with a full-time on-site fire department, provides defense-in-depth protection for these rooms. Additionally, due to their physical separation (approximately 80 feet), it is highly unlikely for a single fire to damage redundant equipment located in the SWC pump rooms.

If a postulated fire were to occur in the Unit 3 SWC pump room, it could:
- Cause a fault on the power cables for both Unit 3 Train A SWC pumps 3P 307 and 3P 112,
- Cause Unit 3 Train B SWC pump 3P 113 to be unavailable,
- Cause a fault on the control cable for Unit 3 Train B SWC pump 3P114, and
- Cause the DC control power to the breaker for the Unit 3 Train B SWC pumps (both) to trip.

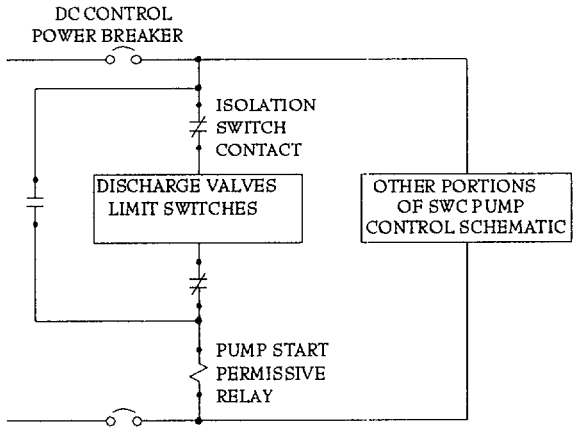
In this event, the "Fire" procedure (SO23-13-21) instructs plant operators to ensure a Train B SWC pump is running for each unit in the SWC pump room that does not have a fire. The procedure includes instructions for the Operators to manually close SWC pump breakers that do not have DC control power. Also, the control cables for the Train B pump (located in Unit 2 pump room) can be isolated and bypassed by operating the associated fire isolation switch. Configuration of the Unit 2 pumps and cables are similar.

The Appendix R analysis acceptance criteria indicates the SWC pumps are needed within 60 minutes to support safe shutdown by transferring heat from the component cooling water heat exchangers to the ultimate heat sink (Pacific Ocean). Thus plant Operators would have sufficient time to complete these actions. Therefore, the Safety significance is minimal.

Additional Information:

In the last two years, there have been no other occurrences, events or condition that involve the same underlying concern or reason as this event (such as root cause, failure, or sequence of events).

SIMPLIFIED SWC PUMP CONTROL SCHEMATIC



EXISTING DESIGN

(NOTE: FIRE ISOLATION SWITCH CONTACTS WERE ADDED POST 1987)

FIGURE 1

SIMPLIFIED SWC PUMP ROOM AND PIPE TUNNEL LAYOUT

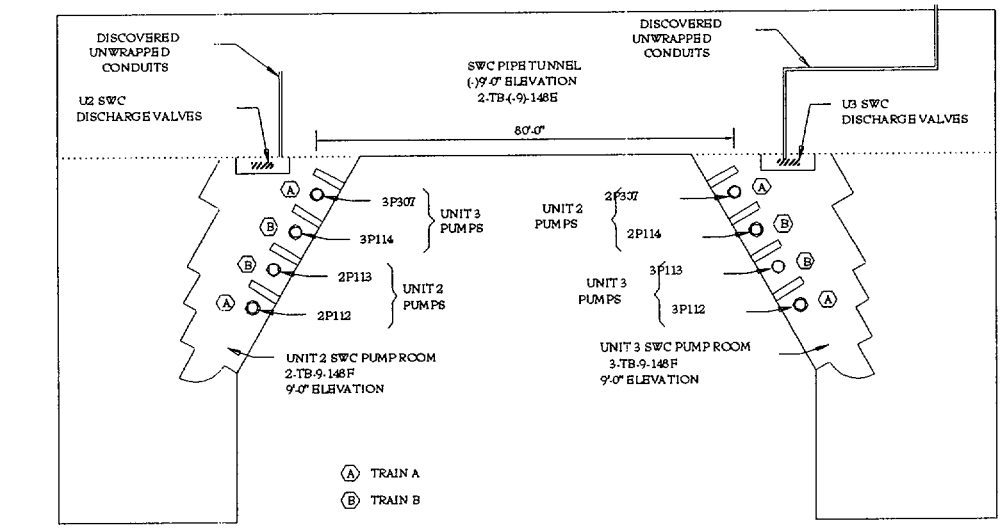


FIGURE 2