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FACILITY NAME (1) **San Onofre Nuclear Generating Station (SONGS) Unit 2** Docket Number (2) **05000-361** Page (3) **1 of 7**

TITLE (4): **Inadequate CREACUS boundary control during HVAC component maintenance.**

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
11	09	1998	1998	-- 024 --	00	12	9	1998	SONGS Unit 3	05000-362
									FACILITY NAME	DOCKET NUMBER

OPERATING MODE	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check One or More) (11)								
POWER LEVEL (10)	100	20.2201(b)	20.2203(a)(2)(v)	X	50.73(a)(2)(i)	50.73(a)(2)(viii)				
		20.2203(a)(1)	20.2203(a)(3)(i)		50.73(a)(2)(iii)	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 **R.W. Krieger, Vice President, Nuclear Generation** TELEPHONE NUMBER (Include Area Code) **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
9812140141	PDR	981209	ADOCK	05000361					
S			PDR						

SUPPLEMENTAL REPORT EXPECTED (14)				EXPECTED SUBMISSION DATE (15)		
Yes (If yes, complete EXPECTED SUBMISSION DATE)	X	No		MONTH	DAY	YEAR

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

On 11/9/98 at 1518, (the discovery date), SCE concluded that past activities resulting in the temporary removal of HVAC duct access hatches for the control room normal and emergency cabinet coolers may not have implemented the appropriate compensatory actions for work on CREACUS boundary components. Two of the three dampers for the cabinet coolers were identified as volume dampers rather than backdraft dampers and are fixed in their throttled open position. With both CREACUS trains affected (for both units), the constraints of TS 3.7.11 Action Statements were exceeded. Consequently, SCE is reporting this condition in accordance with 10 CFR 50.73(a)(2)(i)(B). This condition only existed during those brief time intervals in which the duct access panels and doors for the cabinet coolers were opened from 1985 to 1998 for various maintenance and inspection activities.

The cause for not updating P&IDs and HVAC section drawings subsequent to the Units 2 and 3 construction (1981) could not be determined since it existed since initial plant startup. The incorrect dampers, illustrated in the P&ID and HVAC plans and sections, is considered to have caused SCE personnel (utility, non-licensed) to inappropriately assess the impact on the CREACUS boundary.

Interim administrative controls have been initiated to preclude CREACUS boundary breaches. Plant drawings will be revised and administrative controls will be revised or initiated to identify potential CREACUS boundary breaches.

This condition had minimal safety significance.

(4-95)

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Plant: San Onofre Nuclear Generating Station (SONGS) Units 2 & 3
 Reactor Vendor: Combustion Engineering
 Event Date: November 9, 1998
 Event Time: 1518 PDT

	Unit 2	Unit 3
Mode:	1. Power Operation	1. Power Operation
Power:	99.8 percent	99.8 percent
Temperature:	548 degrees F	546 degrees F
Pressure:	2250 psia	2247 psia

Background:

In August 1996, Southern California Edison (SCE) implemented new Technical Specifications (TS) by means of the Technical Specification Improvement Program (TSIP). Before then, TS 3/4.7.5 required SCE to have two independent control room emergency air cleanup systems operable during all modes or during movement of irradiated fuel assemblies. If both trains are not operable, immediate entry into TS 3.0.3 was required. These TS requirements were transferred, essentially unchanged, to the improved TS on August 5, 1996, and renumbered to TS 3.7.11.

The control room emergency air cleanup system (CREACUS) (VI) maintains the control room (NA) atmosphere within conditions suitable for prolonged occupancy throughout the duration of any one of the postulated accidents discussed in chapter 15 of the Updated Final Safety Analysis Report (UFSAR). The habitability systems provide the capability to detect and protect control room personnel from smoke and noxious gases. The CREACUS is designed to limit the radiation exposure of control room personnel within the limits set by 10CFR50, Appendix A, General Design Criterion 19. Upon receipt of a control room isolation signal (CRIS), actuated by an SIAS or a normal supply air duct high radiation signal, the control room HVAC system is automatically shifted to the emergency mode of operation. Upon receipt of a Toxic Gas Isolation Signal (TGIS), actuated by a normal supply air duct high toxic gas signal, the control room HVAC system is automatically shifted to the isolation mode of operation (no positive pressure is maintained). Transfer to the emergency mode or to the isolation mode may also be initiated manually from the control room.

On a CRIS, an emergency ventilation makeup fan on each train pressurizes the shared Unit 2 and 3 Control Room (CR) to at least 0.125 inches of water gauge relative to the outside atmosphere and provides an air exchange rate in excess of 45 percent per hour. This pressurization of the control room prevents infiltration of unfiltered air from the surrounding areas of the building. The CREACUS pressure boundary consists of components such as walls, floors, ceilings, doors, penetration seals, and HVAC ducts.

The Unit 2 and 3 control room cabinet areas have additional cooling provided by the emergency cabinet cooler units. The cabinet area emergency cooling units also start on a CRIS or TGIS. As illustrated on figure 1 and 1A, the air in each cabinet area (four zones, Unit 2 and 3) is recirculated through an automatic isolation damper for each fan, a cooling unit and a backdraft damper. Each cabinet area is provided with a normal stand-by cooling unit for recirculating air if the temperature increases above 75 degrees Fahrenheit. This unit is located inside the cabinet area and will not affect the control room complex boundary.

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Air for the cabinet area is drawn through ducting inside the 30' elevation Control Room area to the fans and cooling coils on the 50' elevation control building. The air is then discharged back to the cabinet area through ducting.

Access to these fans and components can be made through bolted access hatches on the ducting. The access hatches vary in size from approximately 12"x 12" to approximately 26"x38". The maximum allowable increase in hole size in the CREACUS boundary which would allow the emergency makeup fan to maintain the required 0.125 inches of water gauge pressure is estimated to be approximately 50 square inches.

Description of Event:

On April 24, 1998, SCE recognized that the train A emergency cabinet cooler, shown on the Piping and Instrumentation Diagram (P&ID) drawing, was a volume damper (DMP) rather than backdraft damper (UDMP) and is fixed in the throttled open position. On November 9, 1998, while processing a drawing and Repetitive Maintenance Order change, the Train B emergency cabinet cooler was also discovered with the same condition.

When the cabinet cooler (FCU) duct access hatches are opened, a hole is created in the CREACUS boundary from the 50 foot elevation to the Control Room Cabinet Area. As noted above, a hole greater than 50 square inches would prevent a single emergency makeup fan to achieve the required 0.125 inches of water gauge positive pressure in the control room. Various equipment maintenance and inspection activities between 1985 and 1998 opened the control room normal and emergency cabinet coolers access hatches without recognizing the impact on the CREACUS boundary.

On 11/9/98 at 1518, (the discovery date), SCE concluded that past activities resulting in the temporary removal of HVAC duct access panels and doors for control room normal and emergency cabinet coolers may not have implemented the appropriate compensatory actions for work on CREACUS boundary components.

With both CREACUS trains affected (for both units), the constraints of TS 3.7.11 Action Statements were exceeded. Consequently, SCE is reporting this condition in accordance with 10 CFR 50.73(a)(2)(i)(B). This condition only existed during those brief time intervals in which the duct access panels and doors for the cabinet coolers were opened from 1985 to 1998.

Cause of the Event:

During the Units 2 and 3 construction (1981), the HVAC plan drawings were revised to show dampers for these fans as volume dampers, however, other plant drawings, such as P&IDs and HVAC section drawings, were not updated. The cause for not updating other plant drawings could not be determined since it existed since initial plant startup. The incorrect dampers, illustrated in the P&ID and HVAC plans and sections, is considered to have caused SCE personnel (utility, non-licensed) to inappropriately assess the impact on the CREACUS boundary.

Corrective Actions:

Interim administrative controls have been initiated to preclude CREACUS boundary breaches. Administrative Controls will be revised or initiated to identify potential CREACUS boundary breaches. This is scheduled to be completed by January 31, 1999.

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Plant drawings will be updated to show the installed damper configurations. This is scheduled to be completed by January 15, 1999.

The extent of condition assessment to determine if a similar problem exists on other HVAC systems is continuing. This is scheduled to be completed by the end of the first quarter of 1999.

Safety Significance:

The access hatches were secured during these brief maintenance intervals whenever personnel left the area to satisfy Foreign Material Exclusion requirements based on discussions with recent personnel performing these activities. The boundary integrity has improved over the years based on testing records which demonstrate increases in positive pressure (in 1983 the pressure was 0.23 inches water gauge and recent testing was 0.80 inches of water gauge with similar makeup flow) due to the implementation of several design modifications.

Control Room Dose:

As discussed above, CREACUS provides radiation protection to control room personnel for radioactive release events and as such is a "post accident" system. The CREACUS itself does not affect the likelihood of a release event actually occurring. Based on engineering judgement, the air flow through an open access hatch would be minimized by the quick pressurization of the room due to the small room volume. These rooms (four), containing the cabinet area cooler units, are maintained closed by fire barrier doors. Therefore, in conjunction with the overall leak tightness of the control room complex boundary, SCE believes that the CREACUS would have been able to maintain a positive pressure, thus limiting the potential for control room radiation exposure during those brief time intervals the duct panels were opened.

In addition, radiation level in the Control Room environment is monitored following a CRIS alarm actuation at least once per hour. Also, compensatory actions would be established upon annunciation by the Control Room area radiation monitor. Surveys would be conducted, to locate the source and to determine if the use of respiratory protection is required, in response to an area monitor annunciation. Consequently, SCE concludes this occurrence had minimal safety significance for radiation release events.

Toxic Gas Isolation:

Toxic gas infiltration into the control room as a result of a gas release event during the brief maintenance time intervals did not occur. For offsite toxic gas hazards event, SCE estimates the reported condition constituted an incremental increase in core damage and large early release frequencies (CDF/LERF) for Units 2 and 3 of approximately 3E-8/year. For onsite toxic gas hazard event (ammonia tank), the CDF/LERF risk increase prior to September 26, 1996 was approximately 1E-7/year. After September 26, 1996, the tank was seismically upgraded to withstand higher 'beyond design basis' seismic events. The combined offsite and onsite toxic gas CDF/LERF risk increase was approximately 1E-7/year prior to September 26, 1996 and 3E-8/year after. The risk assessment assumes the reported condition existed an average of 18.5 hours per year. This increase in risk is characterized as small based on Regulatory Guide 1.174. Consequently, there was minimal safety significance to this occurrence.

LICENSEE EVENT REPORT (LER)

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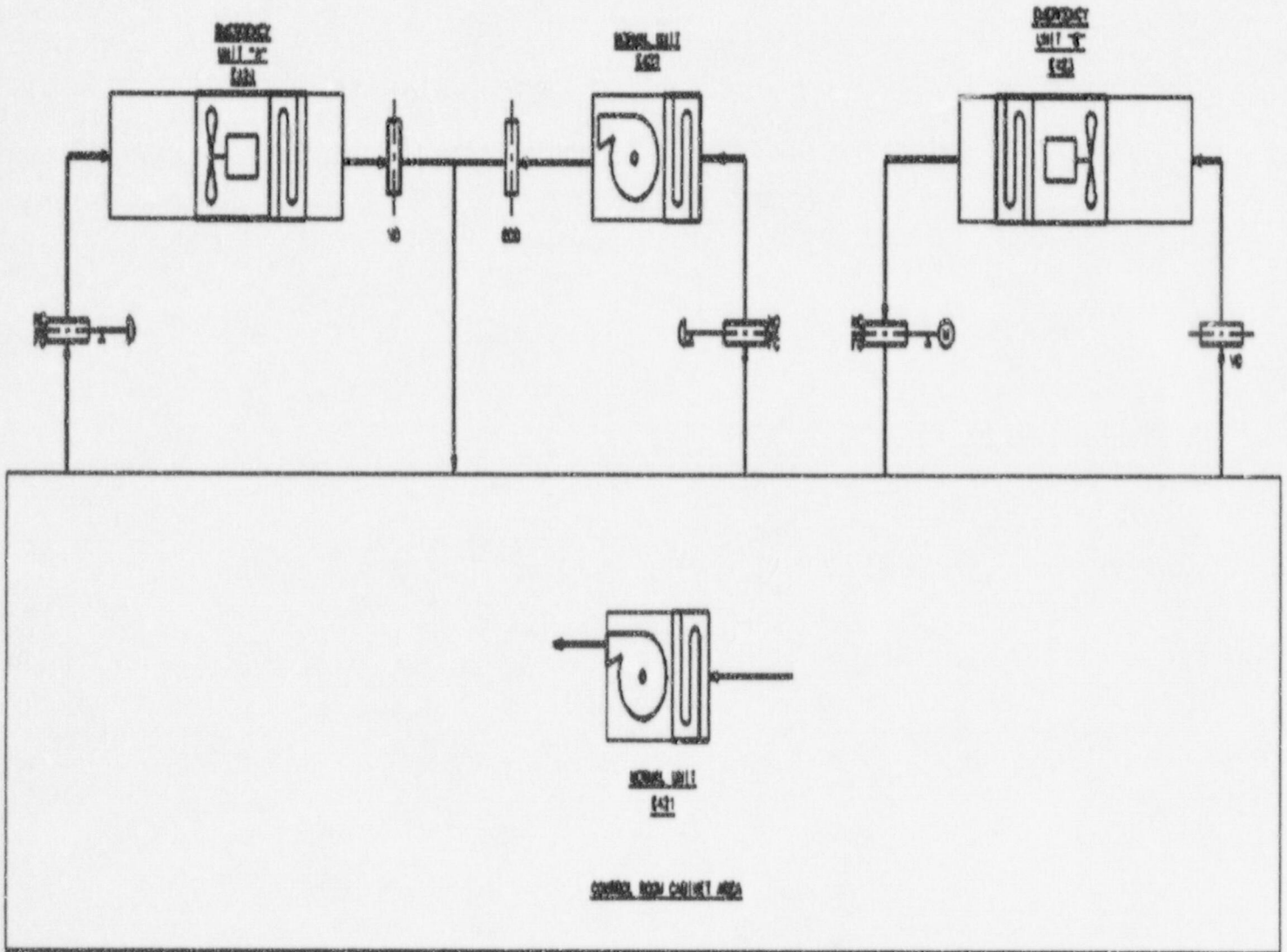
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Additional Information:

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

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Figure 1



(UNIT 3 IS A MIRROR IMAGE OF ABOVE, UNIT NUMBERS DIFFERENT FOR UNIT 3)

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Figure 1A

