

July 10, 2000

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

**Subject: Docket No. 50-361 and 50-362
30-Day Report
Licensee Event Report No. 2000-008
San Onofre Nuclear Generating Station, Units 2 and 3**

Gentlemen:

This submittal provides a 30-day Licensee Event Report (LER) in accordance with 10CFR50.73(a)(2)(iv) for an ESF actuation. While this occurrence is applicable to both Units 2 and 3, a single report for Unit 2 is being submitted in accordance with 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,



LER No. 2000-008

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



NRC FORM 366 (MM-YYYY)		U.S. NUCLEAR REGULATORY COMMISSION			APPROVED BY OMB NO. 3150-0104		EXPIRES MM/DD/YYYY				
LICENSEE EVENT REPORT (LER)											
(See reverse for required number of digits/characters for each block)											
FACILITY NAME (1) San Onofre Nuclear Generation Station (SONGS) Unit 2					DOCKET NUMBER (2) 05000-361			PAGE (3) 1 of 4			
TITLE (4) Radiography Causes Control Room Isolation Signal (CRIS) Actuation											
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	
06	11	2000	2000	- 008 -	00	07	10	2000	SONGS Unit 3	05000-362	
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)		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)		<input checked="" type="checkbox"/> 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 Operations					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	
SUPPLEMENTAL REPORT EXPECTED (14)							EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE).				<input checked="" type="checkbox"/> NO							

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

On 6/11/2000, SCE was performing radiography on the 56-foot elevation of the Unit 2 Turbine Building when the Control Room Isolation Signal (CRIS) Train B radiation monitor actuated. A few minutes later, the CRIS Train A radiation monitor actuated. The Train A and B Control Room Emergency Air Cleanup System actuated as expected. During the pre-job briefing, or tailboard, site personnel discussed the possibility for a CRIS actuation as a result of radiography. However, the actual equivalent dose rate (compared to the setpoint) was not known by the personnel attending the tailboard. Therefore, several shots were deferred to preclude a potential CRIS actuation until additional information became available. Contrary to management expectations, site personnel proceeded while still uncertain of the correlation between the source and the detector setpoint. The personnel involved considered it acceptable to proceed with the radiography based on historical data from previous radiography. SCE has suspended radiography within the Turbine Building until appropriate corrective actions are implemented. Because no actual airborne radioactive contamination was present, this event has no safety significance.

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Plant:	San Onofre Nuclear Generation Station (SONGS) Unit 2	
Discovery Date:	June 11, 2000	
	<u>Unit 2</u>	<u>Unit 3</u>
Reactor Vendor:	Combustion Engineering	Combustion Engineering
Mode:	Mode 1 – Power Operation	Mode 1 – Power Operation
Power:	100 percent	100 percent

BACKGROUND:

The San Onofre Nuclear Generating Station Units 2 and 3 share a common control room. The control room complex emergency air conditioning system is provided with two 100% complete and redundant subsystems; one emergency subsystem is powered from train A and the other is powered from train B. There are two airborne noble gas radiation detectors to monitor the normal supply air duct. If the radiation at this point is above set limits, the radiation monitoring detector system generates a Control Room Isolation Signal (CRIS) which closes isolation dampers and starts the emergency ventilation and emergency air conditioning units.

The Units 2 and 3 Technical Specification setpoint for the CRIS radiation monitors is less than or equal to 4E2 counts per minute (cpm) above normal background radiation. By calculation of record, 4E2 cpm is equivalent to an instrument reading of 1.8E-5 micro-Curies/cubic centimeter. This calculation makes a conservative reduction in setpoint to less than or equal to 1.09E-5 micro-Curies/cubic centimeter above background due to total loop instrument uncertainties. The associated instrument channel functional test sets the trip set point conservatively lower than that allow by calculation of record at a value of 1E-5 micro-Curies/cubic centimeter.

Select Non-Destructive Examinations (NDE) are performed at SONGS using radiography. Radiography is performed using Iridium-192 (Ir-192) sources. Radiography at SONGS requires establishing a 2 millirem per hour (mR/hr) radiation boundary or an equivalent isodose line boundary around radiographic activities.

On May 21, 2000, SCE conducted radiography on the 7-foot, 34-foot, and 43-foot elevations of the Unit 2 Turbine building. Radiography was performed using a 100.6 Ci Ir-192 source. During radiography, site personnel (utility, non-licensed) surveyed the dose rate levels at the radiography 2 mR/hr boundary line located approximately 15 feet from the normal supply air intake plenum to the Units 2 and 3 Control Room. The dose rate recorded did not exceed 0.2 mR/hr. On June 4, 2000, SCE conducted radiography on the 56-foot elevation of the Unit 2 Turbine Building. Radiography was performed using an 88.4 Ci Ir-192 source. During radiography, site personnel surveyed the dose rate levels at the 2 mR/hr boundary line. The dose rate recorded did not exceed 0.2 mR/hr.

DESCRIPTION OF THE EVENT:

On June 11, 2000, at approximately 1313 PDT, SCE was performing radiography on the 56-foot elevation of the Unit 2 Turbine Building when the CRIS Train B radiation monitor (2/3RT7824) actuated. At approximately 1317 PDT, the CRIS Train A radiation monitor (2/3RT7825) actuated. The Train A and B Control Room Emergency Air Cleanup System (CREACUS) actuated as expected.

SCE was performing the radiography on the Unit 2 Main Steam Throttle Stop Valve piping with an 82.84 Ci Ir-192 source. The unshielded beam emanating from the collimated radiographic source was directed away from the CRIS radiation monitors, which are about 150 feet away. The radiography was

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scheduled to last approximately 3.5 minutes. The CRIS actuations occurred during the seventh radiography shot performed; the other six shots were performed approximately ten feet west of the Main Steam Throttle Stop Valve piping. Local dose levels from a handheld detector being used by a support HP technician, located approximately 15' from the air intake plenum, did not exceed 0.2 mR/hr.

Because the actuation of the CRIS radiation monitors did not occur as a result of airborne contamination or actual plant conditions or parameters satisfying the requirements for initiation of the safety function of the system, SCE did not consider this to be a valid actuation requiring a report. However, if a 'valid signal' were to be defined as output from a radiation monitor detecting any radiation source, then this event would be reportable. Because questions were raised regarding which definition of 'valid signal' is applicable in this instance, on June 16, 2000, at 1328 PDT, SCE conservatively reported this condition to the NRC Operations Center (NRC Log No. 37091) as a valid ESF actuation. Thus, SCE is conservatively providing this LER in accordance with 10CFR50.73(a)(2)(iv).

CAUSE OF THE EVENT:

During the pre-job briefing, or tailboard, site personnel (utility, licensed and non-licensed) discussed the possibility for a CRIS actuation as a result of radiography. However, the actual equivalent dose rate (compared to the setpoint) was not known by the personnel attending the tailboard. Therefore, several shots were deferred to preclude a potential CRIS actuation until additional information became available.

Contrary to management expectations, site personnel proceeded while still uncertain of the correlation between the source and the detector setpoint. The personnel involved (utility, licensed and non-licensed) considered it acceptable to proceed with the radiography based on historical data from previous radiography.

Subsequently, it was determined that the CRIS radiation monitors trip setpoint of 1E-5 micro-Ci/cubic centimeter corresponds to a dose rate of approximately 0.1 mR/hr. The procedural limit of 2 mR/hr and the historical practice of 0.2 mR/hr at the radiographic boundary was not sufficient to preclude actuation of the CRIS radiation monitors.

The Data Acquisition System (DAS) for the CRIS radiation monitors indicate the radiation levels during the time of radiography as above the background radiation level; however, the printouts did not indicate the radiation levels as reaching the setpoint threshold. The CRIS radiation monitors can be alarmed by a sharp transition detection algorithm during a rapid increase in radiation levels. The projected radiation level is predicted, and the radiation monitor trips to decrease the monitors' response time as a result of sudden changes in activity. Even though the CRIS radiation monitors actuated CRIS, the monitors would not show the radiation spike on the DAS printout due to the data acquisition frequency. Therefore, because the CRIS radiation monitors actuated coincident with the radiography, and because no other source of radiation was evident, it is apparent that CRIS actuated as a result of the radiographic source.

This event was caused by cognitive personnel error. The risk of a CRIS actuation was recognized; however, personnel did not have a clear understanding of what radiation level would set off the CRIS radiation monitors.

CORRECTIVE ACTIONS:

SCE has suspended radiography within the Turbine Building until appropriate corrective actions are implemented.

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SAFETY SIGNIFICANCE:

The trend data for the CRIS radiation monitors showed no readings above the setpoint of 1E-5 micro-Curie/cubic centimeter. Because no actual airborne radioactive contamination was present, this event has no safety significance.

This issue was evaluated using NRC Manual Chapter 0609, and using the initial assessment of inspection observations for Significance Determination Process (SDP) entry (Attachment 0609.02), the issue would be a minor one without color.

ADDITIONAL INFORMATION:

Under the proposed reporting guidelines outlined in the draft Rev. 2 to NUREG-1022, "Event Reporting Guidelines, 10 CFR 50.72 and 50.73," this event would clearly not be reportable. "Valid actuations are those actuations that result from 'valid signals' or from intentional manual initiation, unless it is part of a preplanned test. Valid signals are those signals that are initiated in response to actual plant conditions or parameters satisfying the requirements for initiation of the safety function of the system." The CRIS Radiation Monitors are intended to detect airborne radioactive contamination and isolate the control room ventilation, thus protecting the operators from potential dose uptake. Radiography does not satisfy the requirements for initiation since it does not involve airborne radioactive contamination.

During the last three years, SCE has not reported any similar instances of ESF actuations as a result of radiography.