



SOUTHERN CALIFORNIA  
**EDISON**

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June 1, 2000

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

Subject: **Docket Nos. 50-362**  
**30-Day Report**  
**Licensee Event Report No. 2000-002**  
**San Onofre Nuclear Generating Station, Unit 3**

Gentlemen:

This submittal provides a 30-day Licensee Event Report (LER) in accordance with 10CFR50.73(a)(2)(i) describing a missed Technical Specification surveillance. 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. 2000-002

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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RGN-001

**NRC FORM 366 U.S. NUCLEAR REGULATORY COMMISSION**  
**(MMM-YYYY)**  
**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, information collection.

**FACILITY NAME (1)**  
 San Onofre Nuclear Generating Station (SONGS) Unit 3

**Docket Number (2)**  
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**TITLE (4):** Missed RCS Leak Rate Surv. - Y2K Error and Inattention to Detail

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
02	01	2000	2000	-- 002	-- 00	06	01	2000	FACILITY NAME	DOCKET NUMBER

<b>OPERATING MODE</b> 1  <b>POWER LEVEL (10)</b> 100	<b>THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check One or More) (11)</b>										
	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)(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

**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	

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

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

On 5/3/2000 (discovery date), an NRC Resident Inspector questioned a discrepancy noted in the data used for calculating the 2/1/2000 (event date) Reactor Coolant System leakage surveillance for Unit 3 and further questioned if SCE may have violated a Technical Specification Surveillance Requirement. Southern California Edison (SCE) determined that the data were in fact incorrect. Consequently, this event is considered to be a missed surveillance and is being reported in accordance with 10CFR50.73(a)(2)(i).

The cause of the data error was a latent Y2K related problem with the way a computer program handled Year 2000 dates. For the event reported herein, both the initial and final data were incorrect and identical. The operator who performed the surveillance did not recognize these details in the surveillance results. Consequently, the surveillance was missed.

SCE replaced the software.

This event had no safety significance because the TS LCO would have been met on 2/1/2000, had the correct data been used. SCE evaluated this event GREEN using the latest draft of the NRC's Reactor Safety Significance Determination Process (SDP).

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Plant: San Onofre Nuclear Generating Station Units 3  
Discovery Date: May 3, 2000  
Event Date: February 1, 2000

	<u>Unit 2</u>	<u>Unit 3</u>
Reactor Vendor	Combustion Engineering	Combustion Engineering
Mode	1 - power operation	1 - power operation
Power (percent)	99.9	99.6
Pressure (psia)	2250	2250
Temperature (degrees F)	537	538

**Background:**

Technical Specification 3.4.13, Reactor Coolant System (RCS)(AB) Operational Leakage, requires RCS operational leakage to be limited to no pressure boundary leakage, 1 gpm unidentified leakage, and 10 gpm identified leakage in modes 1, 2, 3, and 4. Surveillance Requirement (SR) 3.4.13.1 requires an RCS water inventory balance be performed at least once every 72 hours to verify the RCS leakage is within the LCO limits and to ensure the integrity of the RCS pressure boundary is maintained.

**Description of the Event:**

On May 3, 2000 (discovery date), an NRC Resident Inspector questioned a discrepancy noted in the data used for calculating the February 1, 2000 (event date) RCS leakage surveillance for Unit 3 and further questioned if SCE may have violated TS SR 3.4.13.1. Upon further investigation, SCE determined that the data used for the RCS leakage rate calculated for the February 1, 2000 (event date), were in fact incorrect. Consequently, this event is considered to be a missed surveillance and is being reported in accordance with 10CFR50.73(a)(2)(i).

Also on May 3, 2000, the NRC inspector noted what appeared to be a minor nonconservatism in the method used to calculate maximum RCS Identified Leakage. Upon further investigation, SCE validated that observation but also confirmed this potential nonconservatism did not result in a TS violation.

**Cause of the Event:**

The cause of the data input error was a latent Y2K related problem with the way a computer program handled Year 2000 dates. For the RCS leak rate, SCE routinely uses a computer program to collect the data and perform the calculations. If the data collection date and the calculation date were the same, the program would recognize that the dates were consistent, accept the data, perform the leak rate calculations. If the data collection date and the calculation date were different (as in the case reported herein), the program would not "understand" the Year 2000 data date and would replace the input data with plant data taken at the time of the calculation. For the event reported herein, both the initial and final data were collected the day before the leak rate was calculated, causing in the initial and final data

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used for the calculation and printed on the computer calculation output page to be incorrect and identical.

As a result of the data input error, all of the components used to determine leak rate (changes in water inventory volume in the Volume Control Tank (VCT), Pressurizer, four Safety Injection Tanks (SIT), Reactor Coolant Drain Tank (RCDDT), Quench Tank, and the volume change in the RCS due to changes in RCS water temperature) were all calculated to be "0.0 gal." The error caused by the computer program could have been discovered if the operator (utility, licensed) or his supervisor (utility, licensed) recognized there was no difference in the initial and final values. Normally, there is a slight difference in these values. The operator and his supervisor utilized an inadequate level of attention to detail in performing their review. Consequently, the surveillance was missed.

The cause of the potential small non-conservatism in the identified leakage calculation is attributed to the way in which instrument uncertainties are handled. Total RCS and Chemical and Volume Control System (CVCS) leakage typically runs about 0.1 gpm with an instrument uncertainty of about 0.03 gpm. To ensure a conservative surveillance, SONGS adds the uncertainty to get a total leakage rate of about 0.13 gpm. If the total Leakage is less than 1.0 gpm, then the surveillance is acceptable because Identified and Unidentified Leakage must also be below their limits. SONGS can measure identified leakage directly by monitoring level changes in the closed tanks attached to the RCS. That leakage typically runs about 0.09 gpm on Unit 2 and 0.01 gpm on Unit 3 with an uncertainty of about 0.02 gpm. Thus, a direct calculation of identified leakage would have given a value of about 0.10 gpm on Unit 2 and 0.03 gpm on Unit 3. The approach of using Total leakage bounds identified leakage and is therefore conservative.

In the history of operation at Units 2 and 3 there have been very few instances where this approach was not sufficient. If Total Leakage were to be above 1.0 gpm it becomes necessary to calculate the Identified and Unidentified Leakage values specifically. Unidentified leakage is calculated as the difference between total leakage and identified leakage. Since the limit on unidentified leakage is only 1.0 gpm versus the 10.0 gpm limit on identified leakage, it was decided to maximize the calculation of unidentified leakage by subtracting the uncertainty value from the identified leakage value. This could have resulted in a very slight non-conservatism in the calculation of identified leakage on the order of about 0.03 gpm out of an allowable leakage rate of 10.0 gpm. Neither Unit has operated with identified leakage rates so high that this error would have resulted in an unsatisfactory surveillance being considered satisfactory because of this hypothetical non-conservatism.

**Corrective Actions:**

1. SCE recalculated the February 1, 2000 RCS leak rate using corrected data and confirmed it was within the limits of the TS. SCE confirmed that the next calculated RCS leak rate met the TS limits. SCE also verified that no other RCE leakage surveillances were missed during the period between January 1, 2000, and February 25, 2000, due to this error.
2. SCE replaced the software with Y2K compliant software on February 25, 2000.
3. All Operations Supervisors will be briefed about the missed surveillance event.

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TEXT CONTINUATION

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- An On-Job-Training package, including the elements of effective review and real examples of document errors, will be created.
- Shift Managers will discuss with their supervisors the importance of thorough document review.

**Safety Significance:**

- This event had no safety significance because the TS LCO would have been met on February 1, 2000, had the correct data been used. See Corrective Actions.
- The condition reported herein was evaluated by SCE as GREEN using the latest draft of the NRC's Reactor Safety Significance Determination Process (SDP).

**Additional Information:**

During 1999, SCE conducted an extensive review of computer systems to identify Y2K issues. That review did not identify this software error. The computer program which performs the RCS Leak Rate data acquisition and calculation was tested in the Y2K program. However, because this problem was not a date "roll over" problem, and occurred only when the data collection date and calculation date were different, the testing methodology did not identify the error.

On February 17, 2000, the leak rate was incorrectly calculated for a similar reason as reported herein. The operators recognized that there was a problem with the calculations and performed a manual calculation. The problem was documented in an AR, and the computer problem corrected. However, the generic implications (previous occurrences) were not investigated, and the event reported herein was not identified.

A review of SCE LERs for the past three years showed the following similar reported events:

- LER 3-1999-007 reported instances of missed TS surveillances caused by an error in the scheduling computer software. However, that software error was not related to Y2K problems, nor was it reasonable expected that the omission would be identified by those performing the surveillances. The corrective actions for that event were not expected to prevent the event reported herein.
- LER 2-1998-018 reported that an evaluation of the Total Loop Uncertainty (TLU) for the Charging System flow instrumentation determined the TLU to be plus or minus 15-20 gpm. Because the nominal charging pump flow is 44 gpm and the TS Surveillance 3.5.2.6 requirement is 40 gpm, the TS SR was not met. SCE did not determine the cause because this condition has existed since initial plant startup (1982-1983). However, the non-conservative calculation of identified leakage was not caused by TLU, but rather the way uncertainty was handled. In addition, the small non-conservatism was not identified as the cause of a missed TS surveillance.