

November 2, 2000

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

Subject: **Docket Nos. 50-361**  
**30-Day Report**  
**Licensee Event Report No. 2000-012**  
**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)(i) for an event involving Technical Specification 3.1.9, "Boration Systems - Operating." While this report is applicable to both Units 2 and 3, a single report is being submitted for Unit 2 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,

*R. Waldo for RWR.*

LER No. 2000-012

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

<b>RC FORM 366</b> (MM-YYYY)		<b>U.S. NUCLEAR REGULATORY COMMISSION</b>			<b>APPROVED BY OMB NO. 3150-0104</b>		<b>EXPIRES MM/DD/YYYY</b>				
<b>LICENSEE EVENT REPORT (LER)</b>											
(See reverse for required number of digits/characters for each block)											
FACILITY NAME (1) <b>San Onofre Nuclear Generation Station (SONGS) Unit 2</b>					DOCKET NUMBER (2) <b>05000-361</b>			PAGE (3) <b>1 of 4</b>			
TITLE (4) <b>Common boration flow path closed during Mode 4 – Potential non-conformance with TS 3.1.9, "Boration Systems - Operating"</b>											
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	
10	6	2000	2000	-- 012 --	00	11	2	2000	<b>San Onofre Unit 3</b>	<b>50-362</b>	
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)		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	
				20.2203(a)(2)(iv)		50.36(c)(2)		50.73(a)(2)(vii)			
<b>LICENSEE CONTACT FOR THIS LER (12)</b>											
NAME <b>R. W. Krieger, Vice President, Nuclear Operations</b>							TELEPHONE NUMBER (Include Area Code) <b>949-368-6255</b>				
<b>COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)</b>											
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)

While discussing CVCS check valve testing for the Unit 2 Cycle 11 refueling outage (which began on 10/7/00), SCE recognized that 2HV9200 had been closed when Unit 2 was in Mode 4 and below 400 psia during its Cycle 10 refueling outage shutdown, without first aligning an alternate boration flow path. (3HV9200 had also been closed under similar conditions during the Unit 3 cycle 10 refueling outage.)

TS 3.1.9 had been interpreted to allow this action. Nevertheless, SCE recognizes there is a more conservative interpretation of TS 3.1.9. Because 2HV9200 is common to both charging header boration flow paths, if 2HV9200 was closed, neither train would respond to a SIAS. Although automatic SIAS is not required in Mode 4, manual SIAS is required in Mode 4. Therefore, on October 6, 2000 (discovery date), SCE conservatively concluded that closing 2HV9200 during the cycle 10 refueling outage with the plant in Mode 4 below 400 psia with SIAS disabled may not have maintained the two boration flow paths required by TS 3.1.9. SCE is submitting this report in accordance with 10CFR50.73(a)(2)(i).

Prior to starting the shutdown for the current refueling outage, SCE revised the applicable procedure to require an alternate flow path to be aligned before closing 2HV9200 in Mode 4. Therefore, when 2HV9200 was closed on October 8, 2000 with the plant in Mode 4 below 400 psia, plant Operators first aligned an alternate boron injection flow path through the HPSi header.

There is minimal safety significance to this issue. Closing 2HV9200 without first aligning an alternate boration flow path would not prevent operators from initiating boron injection in Mode 4 if it had been required. Additionally, the current NRC approved Standard Technical Specifications for Combustion Engineering Plants do not have a TS for boration flow paths.

LICENSEE EVENT REPORT (LER)

TEXT CONTINUATION

FACILITY NAME(1)	DOCKET	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
San Onofre Nuclear Generating Station (SONGS) Units 2 and 3	05000-361	2000	-- 012 --	00	2 of 4

Plant: San Onofre Nuclear Generating Station, Units 2 and 3  
 Reactor Vendor: Combustion Engineering  
 Discovery Date: October 6, 2000

	<u>Unit 2</u>	<u>Unit 3</u>
Mode:	1-Power Operation	1-Power Operation
Power Level:	~90 percent	~100 percent

Background:

When the plant is in Modes 1 through 4, Technical Specification 3.1.9, "Boron Injection Systems – Operating," requires that "two RCS boron injection flow paths shall be operable with the contents of the Boric Acid Makeup (BAMU) tanks in accordance with the LCS." Once every 31 days, the associated TS SR 3.1.9.3 requires SCE to "verify that each flow path is operable and that each valve (manual, power operated or automatic, that is not locked, sealed, or otherwise secured) in the above required flow paths is in its correct position. The Bases for TS 3.1.9 further clarify that a boron injection flow path is not OPERABLE if it is not capable of performing its boron injection function in response to a SIAS.

The Chemical and Volume Control System (CVCS) (CB) functions to provide a means for reactivity control and maintaining reactor coolant inventory, activity, and chemistry. The CVCS includes the letdown and boron injection subsystems. The boron injection subsystem is required to establish and maintain a safe shutdown condition for the reactor. The letdown portion of the CVCS is used for normal plant operation, however, it is not required for safety.

Two OPERABLE boron injection flow paths are required while operating in Modes 1, 2, 3, or 4. One flow path includes the OPERABLE Refueling Water Storage Tank (RWST) (TS 3.5.4), the associated gravity feed valves, and the charging pumps (CV)(P). The second flow path includes the BAMU tanks with their individual or combined contents in accordance with the LCS, the associated gravity feed valves, BAMU pump(s), and charging pumps. The charging pumps discharge directly to the RCS (AB) through a common header. Valve HV9200 is a remote operated manual valve in the common discharge header of the charging system and is normally locked open in Modes 1 through 4. The Bases for TS 3.1.9 indicate "should the charging line inside containment be inoperable, the line may be isolated outside containment and flow redirected through the high pressure safety injection headers to assure boron injection." Thus, the HPSI headers can be credited as a boron flow path.

TS 3.3.6 requires SIAS to be Operable in Modes 1 through 4. However, both this TS and its associated Bases clarify that only the capability to manually actuate SIAS in Mode 4 is required. Automatic SIAS actuation capability in Mode 4 is not required. The Bases for TS 3.3.5, "ESFAS Instrumentation" also states "the Pressurizer Pressure - Low trip and the SIAS Function may be simultaneously bypassed when RCS pressure is below 400 psia, when neither the reactor trip nor an inadvertent SIAS actuation are desirable and these Functions are no longer needed to protect the plant."

## LICENSEE EVENT REPORT (LER)

TEXT CONTINUATION

FACILITY NAME(1)	DOCKET	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
San Onofre Nuclear Generating Station (SONGS) Units 2 and 3	05000-361	2000	-- 012 --	00	3 of 4

## Discussion:

While discussing CVCS check valve testing for the Unit 2 Cycle 11 refueling outage (which began on 10/7/00), SCE recognized that 2HV9200 had been closed when Unit 2 was in Mode 4 and below 400 psia during its Cycle 10 refueling outage shutdown, without first aligning an alternate boration flow path. (3HV9200 had also been closed under similar conditions during the Unit 3 cycle 10 refueling outage.) SCE immediately began to evaluate whether this action was allowed by TS 3.1.9 (AR 001000250).

TS 3.1.9 had been interpreted to allow this action. The flow paths required by the boron injection TS extend from their sources of borated water, through the charging pumps to the RCS. When automatic SIAS is disabled in Mode 4 below 400 psia, as allowed by TS 3.3.5 and 3.3.6, neither the charging pumps nor valves in the suction side of the flow path would automatically respond to a SIAS. Rather, manual operator action would be required to initiate boration. Similarly, with 2HV9200 closed with the plant in Mode 4 and automatic SIAS disabled, operator action would be required to open this valve and initiate boron injection. Therefore, interpreting TS 3.1.9 to allow 2HV9200 to be closed under these conditions is consistent with TS 3.3.5 and 3.3.6.

This interpretation is also consistent with NRC (D. Eisenhut) letter dated April 10, 1980, which states: "the specified time to take action, usually called the equipment out-of-service time, is a temporary relaxation of the single failure criterion (...)." Applying this logic to boration flow paths, if closing HV9200 causes one train of boration to be considered inoperable, then TS 3.1.9, Action A for one train out of service would be entered. With the Unit in an Action Statement, the April 10, 1980, letter would indicate that SCE need not consider a potential single failure of HV9200 and hence, the second boration flow path could be considered operable with that valve closed.

Nevertheless, SCE recognizes there is a more conservative interpretation of TS 3.1.9. Because 2HV9200 is common to both charging header boration flow paths, when 2HV9200 was closed, neither train would respond to a SIAS. Although automatic SIAS is not required in Mode 4, manual SIAS is required in Mode 4. Therefore, on October 6, 2000 (discovery date), SCE conservatively concluded that closing 2HV9200 during the cycle 10 refueling outage with the plant in Mode 4 below 400 psia with SIAS disabled may not have maintained the two boration flow paths required by TS 3.1.9. Because TS 3.1.9 does not provide an action for both trains inoperable, applying this interpretation would place the Unit in TS 3.0.3. As the Unit was already in Mode 4, TS 3.0.3 would require action to be initiated within 1 hour to place the Unit in Mode 5 in 37 hours. Although plant operators did not apply this TS interpretation and therefore did not consider TS 3.0.3 applicable, the Unit was placed in Mode 5 within 37 hours and there was no TS violation even under this more conservative interpretation. Because NUREG-1022, Rev. 1 indicates that entry into TS 3.0.3 for any reason is reportable, SCE is submitting this report in accordance with 10CFR50.73(a)(2)(i).

## Cause of the Event:

This event was caused by application of the alternate interpretation of TS 3.1.9 detailed above.

**LICENSEE EVENT REPORT (LER)**  
TEXT CONTINUATION

FACILITY NAME(1)	DOCKET	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
San Onofre Nuclear Generating Station (SONGS) Units 2 and 3	05000-361	2000	-- 012 --	00	4 of 4

**Corrective Actions:**

Prior to starting the shutdown for the current refueling outage, SCE revised procedure SO23-3-3.31.5, "CVCS/PZR Spray Valve Testing – Offline," to require an alternate flow path to be aligned before closing HV9200 in Mode 4. Therefore, before 2HV9200 was closed on October 8, 2000, with the plant in Mode 4 below 400 psia, plant Operators first aligned an alternate boron injection flow path through the HPSI header.

SCE is currently considering submitting an amendment application to the NRC to modify TS 3.1.9 to provide improved clarity or to remove unnecessary conservatism.

**Safety Significance:**

There is minimal safety significance to this issue. Closing HV9200 without first aligning an alternate boration flow path would not prevent operators from initiating boron injection in Mode 4 if it had been required. Additionally, the current NRC approved Standard Technical Specifications for Combustion Engineering Plants do not have a TS for boration flow paths.

This condition was evaluated by SCE as "Green" using the NRC's Reactor Safety Significance Determination Process (SDP).

**Additional Information:**

In the past three years, SCE has not reported any other situations involving boration flow paths.