



*Southern California Edison Company*

SAN ONOFRE NUCLEAR GENERATING STATION

P. O. BOX 128

SAN CLEMENTE, CALIFORNIA 92674-0128

R. W. KRIEGER  
STATION MANAGER

TELEPHONE  
(714) 988-6255

June 3, 1992

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

Subject: Docket No. 50-361  
30-Day Report  
Licensee Event Report No. 92-010  
San Onofre Nuclear Generating Station, Unit 2

Pursuant to 10 CFR 50.73(d), this submittal provides the required 30-day written Licensee Event Report (LER) for an occurrence involving the Toxic Gas Isolation System at Units 2 and 3. Since this occurrence involved a system which is common to both Units 2 and 3, a single report for Unit 2 is being submitted in accordance with NUREG-1022. Neither the health nor the safety of plant personnel or the public was affected by this occurrence.

If you require any additional information, please so advise.

Sincerely,

Enclosure: LER No. 92-010

cc: C. W. Caldwell (USNRC Senior Resident Inspector, Units 1, 2 and 3)

J. B. Martin (Regional Administrator, USNRC Region V)

Institute of Nuclear Power Operations (INPO)

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LICENSEE EVENT REPORT (LER)

Facility Name (1) SAN ONOFRE NUCLEAR GENERATING STATION, UNIT 2 Docket Number (2) 0 | 5 | 0 | 0 | 0 | 3 | 6 | 1 | 1 of 0 | 5 Page (3)

Title (4)

TOXIC GAS ISOLATION SYSTEM ACTUATION DUE TO MOMENTARY HIGH AMMONIA CONCENTRATION SIGNAL

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 Names	Docket Number(s)
0 5	0 6	9 2	9 2	0   1   0	0   0	0 6	0 3	9 2	SONGS, UNIT 3	0   5   0   0   0   3   6   2
										0   5   0   0   0

OPERATING MODE (9) 1  
 THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)  
 POWER LEVEL (10) 1 | 0 | 0  
 20.402(b) \_\_\_\_\_ 20.405(c) \_\_\_\_\_ X 50.73(a)(2)(iv) \_\_\_\_\_ 73.71(b) \_\_\_\_\_  
 20.405(a)(1)(i) \_\_\_\_\_ 50.36(c)(1) \_\_\_\_\_ 50.73(a)(2)(v) \_\_\_\_\_ 73.71(c) \_\_\_\_\_  
 20.405(a)(1)(ii) \_\_\_\_\_ 50.36(c)(2) \_\_\_\_\_ 50.73(a)(2)(vii) \_\_\_\_\_ Other (5, specify in  
 20.405(a)(1)(iii) \_\_\_\_\_ 50.73(a)(2)(i) \_\_\_\_\_ 50.73(a)(2)(viii)(A) \_\_\_\_\_ Abstract below and  
 20.405(a)(1)(iv) \_\_\_\_\_ 50.73(a)(2)(ii) \_\_\_\_\_ 50.73(a)(2)(viii)(B) \_\_\_\_\_ in text  
 20.405(a)(1)(v) \_\_\_\_\_ 50.73(a)(2)(iii) \_\_\_\_\_ 50.73(a)(2)(x) \_\_\_\_\_

LICENSEE CONTACT FOR THIS LER (12)

Name R. W. Krieger, Station Manager TELEPHONE NUMBER  
 AREA CODE 7 | 1 | 4 3 | 6 | 8 - | 6 | 2 | 5 | 5

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS
//////	//////	//////	//////	//////	//////	//////	//////	//////	//////
//////	//////	//////	//////	//////	//////	//////	//////	//////	//////

SUPPLEMENTAL REPORT EXPECTED (14)

Expected Submission Date (15) \_\_\_\_\_  
 Yes (If yes, complete EXPECTED SUBMISSION DATE) [XX] NO

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

At 0953 on May 6, 1992, with Unit 2 at 100% power and Unit 3 in Mode 4, a spurious train A toxic gas isolation system (TGIS) actuation occurred due to a momentary high ammonia concentration signal. No ammonia odor was present in the control room, and ammonia concentration levels were verified to be normal shortly after the actuation. All TGIS train A components were verified to actuate as required by design. At 1445 on May 6, 1992, TGIS train A was reset, and the control room ventilation lineup was returned to normal.

Two causes of the TGIS actuation were considered possible: a) an actual high ammonia concentration signal of short duration, or b) an intermittent electronic problem or noise spike in the train A ammonia monitor. Both of these potential causes were thoroughly investigated; however, neither of these causes could be confirmed.

Following the investigation of the TGIS actuation, which included a detailed check of the train A ammonia monitor, and during which no problems were noted, TGIS train A was returned to service at 1052 on May 11, 1992. Since this is the first TGIS actuation for which no anomalies were noted, no further corrective actions are planned at this time.

There is no safety significance to this event since all TGIS train A components operated as designed.

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Plant: San Onofre Nuclear Generating Station  
 Unit: Two and Three  
 Reactor Vendor: Combustion Engineering  
 Event Date: 05-06-92  
 Time: 0953

A. CONDITIONS AT TIME OF THE EVENT:

Unit 2: Mode 1, Power Operations, 100% reactor power  
 Unit 3: Mode 4, Hot Shutdown, 330 degrees F

B. BACKGROUND INFORMATION:

The toxic gas isolation system (TGIS) [VI] is designed to automatically isolate the common Units 2 and 3 control room ventilation system [VI] from outside air upon detection of chlorine, ammonia or butane (hydrocarbon) gas in the outside air intake. Two trains of TGIS are provided. Upon actuation of either train of TGIS, control room outside air intake and exhaust pathways are automatically isolated, and air is recirculated inside the control room spaces through HEPA filters and charcoal adsorbers.

C. DESCRIPTION OF THE EVENT:

1. Event:

At 0953 on May 6, 1992, a TGIS train A actuation occurred due to a momentary high ammonia concentration signal. All TGIS train A components were verified to actuate as required by design. No ammonia odor was noted in the control room, and ammonia concentration levels were verified to be normal a few minutes after the actuation. At 1445 on May 6, 1992, TGIS train A was reset, and the control room ventilation lineup was returned to normal.

2. Inoperable Structures, Systems or Components that Contributed to the Event:

None.

3. Sequence of Events:

<u>TIME</u>	<u>ACTION</u>
0953	TGIS train A actuation occurred. Proper system operation was verified.
1445	TGIS train A reset.

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4. Method of Discovery:

Control room alarms and indications alerted the control room operators (utility, licensed) to the TGIS train A actuation.

5. Personnel Actions and Analysis of Actions:

The control room operators responded properly to the actuation by 1) verifying proper operation of TGIS train A components, and 2) verifying ammonia concentration levels were normal prior to resetting the TGIS and returning the ventilation lineup to normal.

6. Safety System Responses:

All TGIS train A components actuated as required by design.

D. CAUSE OF THE EVENT:

1. Immediate Cause:

Shortly following the actuation, inspection of the local TGIS panel identified that the actuation was caused by a high ammonia concentration signal of short duration on the train A monitor. The TGIS train B monitor was not affected. Ammonia concentration indicated normal levels on both trains of TGIS monitors.

2. Root Cause:

Two causes of the TGIS actuation were considered possible: a) an actual high ammonia concentration signal of short duration resulted in a valid actuation, or b) an intermittent electronic problem or noise spike in the train A ammonia monitor resulted in a spurious actuation. As discussed below, however, neither of these causes could be confirmed.

a. Valid Actuation Investigation:

For an actual high ammonia signal to have caused the actuation, a "puff" of ammonia must have entered the TGIS, barely sufficient to actuate train A but not sufficient to actuate train B. This scenario, although considered possible due to the presence of several sources of ammonia in the plant, is considered highly unlikely, since the sensors from both TGIS trains are located in the same control room ventilation intake ducting. A normally scheduled 31-day functional test of TGIS train B was completed satisfactorily on May 13, 1992, with no problems noted.

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In addition, no ammonia odor was noted at the TGIS control panel, near the TGIS sensor locations, or in any areas in or around the immediate control room area. A review of logs and a survey of work groups did not identify any evolutions that might have caused the high ammonia signal at the time of the actuation. Finally, immediate investigation in the area of the analyzer did not reveal any activities (i.e., use of cleaning solvents) which could have caused the spurious actuation.

b. Spurious Actuation Investigation:

The TGIS train A ammonia monitor was inspected and found to be operating properly. This inspection included checking the proper operation of the chopper motor and oscillator circuit board, components whose previous failures were associated with past TGIS actuations (reference LER 91-008 and LER 88-032, Docket No. 50-361). Immediate investigation in the area of the analyzer did not reveal any activities (i.e., radio operation) which could have caused the spurious actuation. No upscale deflection of the ammonia monitor output was observed for several days following the actuation. The 31-day functional surveillance test was completed satisfactorily on TGIS train A, with no problems noted.

E. CORRECTIVE ACTIONS:

1. Corrective Actions Taken:

Following investigation of the TGIS actuation, and observing no further problems, TGIS train A was returned to service at 1052 on May 11, 1992.

2. Planned Corrective Actions:

No further corrective actions are planned at this time. This is the first TGIS actuation for which no anomalies could be found during an extensive cause investigation.

F. SAFETY SIGNIFICANCE OF THE EVENT:

There is no safety significance to this event since all TGIS train A components operated as designed.

G. ADDITIONAL INFORMATION:

1. Component Failure Information:

Not applicable

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2. Previous LERs for Similar Events:

Spurious TGIS actuations for which no cause could be confirmed have been previously reported in LERs 88-023 and 86-016, Docket No. 50-361. However, in those events, spiking of the ammonia monitor was observed following the actuations, indicating that the actuations were caused by an intermittent electrical problem. Following the actuation reported in this LER (92-010), no such spiking was observed. It cannot be determined whether the corrective actions implemented following the actuation reported in LER 88-023 could have prevented recurrence since the cause of this most recent TGIS actuation could not be determined.