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FACIL:50-361 San Onofre Nuclear Station, Unit 2, Southern Californ 05000361
AUTH.NAME AUTHOR AFFILIATION
MORGAN,H.E. Southern California Edison Co.
RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 90-002-00:on 900401,toxic gas isolation sys actuation,
Train A & B ammonia channels due to packing leak.
W/9 ltr.

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Southern California Edison Company

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April 27, 1990

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

Subject: Docket No. 50-361
30-Day Report
Licensee Event Report No. 90-002
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 an actuation of the Toxic Gas Isolation System (TGIS). Since this occurrence involves shared systems between Units 2 and 3, a single report for Unit 2 is being submitted in accordance with NUREG-1022. Neither the health and safety of plant personnel or the public was affected by this occurrence.

If you require any additional information, please so advise.

Sincerely,

H. E. Morgan

Enclosure: LER No. 90-002

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			Page (3) 1 of 0 6	
Title (4) TOXIC GAS ISOLATION SYSTEM ACTUATION, TRAIN "A" AND "B" AMMONIA CHANNELS DUE TO A PACKING LEAK ON CONDENSATE AMMONIA ADDITION PUMP (P064)														
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 4	0 1	9 0	9 0	0 0 2	0 0	0 4	2 7	9 0	SONGS, UNIT 3			0 5 0 0 0 3 6 2		
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 (Specify in Abstract below and in text)				
				20.405(a)(1)(iii)		50.73(a)(2)(i)		50.73(a)(2)(viii)(A)						
				20.405(a)(1)(iv)		50.73(a)(2)(ii)		50.73(a)(2)(viii)(B)						
				20.405(a)(1)(v)		50.73(a)(2)(iii)		50.73(a)(2)(x)						
LICENSEE CONTACT FOR THIS LER (12)														
Name H. E. Morgan, Station Manager										TELEPHONE NUMBER AREA CODE 7 1 4 3 6 8 - 6 2 4 1				
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)														
CAUSE	SYSTEM	COMPONENT	MANUFAC- Turer	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFAC- Turer	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFAC- Turer	REPORTABLE TO NPRDS
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 fifteen single-space typewritten lines) (16)														

At 1149 on 4/1/90, with Units 2 and 3 at 100% power, a Toxic Gas Isolation System (TGIS) actuation occurred. The actuation is believed to have been in response to high ammonia gas detected by Train "A" and "B" ammonia analyzers. All TGIS Train "A" and "B" components were verified to have actuated as required. TGIS Train "A" and "B" were reset at 1245 and 1315, respectively.

Due to the short duration of time that the ammonia was present as detected by the ammonia analyzers, the root cause cannot be conclusively determined. However, SCE believes the source of ammonia was due to a packing leak on Condensate Ammonia Addition Pump (P064), which existed at the time of the TGIS actuation.

P064 packing was adjusted, securing the packing leak. Following the TGIS actuation, the TGIS instrumentation was monitored and determined to be operating properly.

There is no safety significance to this event since all TGIS and Control Room Emergency Air Cleanup System (CREACUS) components operated as designed.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

SAN ONOFRE NUCLEAR GENERATION STATION UNIT 2	DOCKET NUMBER 05000361	LER NUMBER 90-002-00	PAGE 2 OF 6
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Plant: San Onofre Nuclear Generating Station
Unit: Two
Reactor Vendor: Combustion Engineering
Event Date: 04-01-90
Time: 1149

A. CONDITIONS AT TIME OF THE EVENT:

Mode: 1, Power Operation

B. BACKGROUND INFORMATION:

The Toxic Gas Isolation System (TGIS) and associated Control Room Emergency Air Cleanup System (CREACUS) [VI] consists of two independent trains of: ammonia, butane, and chlorine analyzers [AI]; emergency air conditioning (EAC) units (E-418 and E-419) [ACU]; cabinet area emergency air cooling units (E-423, E-424, E-426, and E-427) [ACU]; and associated emergency isolation dampers [BDMP]. Upon receipt of a high signal from either of the analyzers, CREACUS is actuated in the isolation mode; i.e., the common Units 2 and 3 control room is isolated from outside air by closing the isolation dampers, and air is recirculated by the EAC units (which also contain filtration units [FLT]), thus providing filtered and cooled air to control room personnel.

C. DESCRIPTION OF THE EVENT:

1. Event:

At 1149 on 4/1/90, with Units 2 and 3 at 100% power, a TGIS actuation occurred in response to an apparent high ammonia signal as detected by Train "A" and "B" ammonia analyzers. All TGIS Train "A" and "B" components were verified to have actuated as required. Following verification that the ammonia levels had returned to normal, TGIS Train "A" and "B" were reset at 1245 and 1315, respectively.

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

None.

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3. Sequence of Events:

<u>TIME</u>	<u>ACTION</u>
1149	TGIS Trains "A" and "B" actuation occurred. Operations verified proper system operation.
1245	TGIS Train "A" actuation reset.
1315	TGIS Train "B" actuation reset.

4. Method of Discovery:

Control Room alarms and indications alerted the operators of the TGIS actuation.

5. Personnel Actions and Analysis of Actions:

Operators (licensed, utility) responded properly to the actuation by: 1) verifying each TGIS Train "A" and "B" component actuated as required; and 2) verifying control room ammonia gas levels were normal prior to resetting TGIS "A" and "B" and returning the control room ventilation lineup to normal.

6. Safety System Responses:

Both trains of CREACUS started and operated as designed.

7. TGIS Investigation:

The investigation of the TGIS actuation revealed the following:

- a) On 3/30/90, Operations noted that Condensate Ammonia Addition Pump (P064), located in Unit 2 turbine building 7' elevation, which supplies ammonia to the condensate system for pH control had a small packing leak (1 drop per 3-4 seconds) and generated a Maintenance Order (MO) to correct the packing leak. The operator did not smell any strong ammonia fumes in the vicinity of P064 at this time.
- b) At approximately 0900 on 4/1/90, a maintenance worker detected a strong ammonia smell localized in the vicinity (within approximately 10') of P064. The maintenance worker concluded that the smell was normal due to being in close proximity to the ammonia storage tanks.
- c) Approximately 15 minutes prior to the TGIS actuation, an operator smelled ammonia on the 70' elevation, just outside of the control building. The ammonia smell was detected only for a very short period of time (approximately 2-3 seconds). Due to the short duration, the source of the ammonia could not be

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determined. The operator remained in the area for several minutes in an attempt to detect the ammonia odor; however, this attempt was unsuccessful.

- d) TGIS Trains "A" and "B" actuated on ammonia gas level high (setpoint of 93 ppm).
- e) At the time of the TGIS actuation, an operator was dispatched to the area of P064. The operator reported the packing leak on P064 to be approximately 30 drops/minute and that strong ammonia fumes were present and localized to within approximately 20' of P064. The TGIS sample points are approximately 200' from P064.
- f) Approximately two minutes after the actuation, an operator who was investigating the actuation noted that the reading at the TGIS panel was back to normal (6 ppm) on Train "A" and almost back to normal (15 ppm) on Train "B" and still decreasing.
- g) During the time period from 1149 to approximately 1230, a search was conducted to identify the cause for the TGIS actuation and the following was noted:
 - 1) No ammonia fumes were present at either Unit 2 or Unit 3 Full Flow Coolant Polishing Demineralizers (FFCPD). Ammonia is utilized at the FFCPDs in the regeneration process of the FFCPD ion exchanger resin. Unit 2 and 3 FFCPDs would therefore be a likely candidate for a TGIS actuation due to high ammonia concentration level.
 - 2) A search was made in the vicinity of the air intake to the control building ventilation, but no ammonia was present that could be detected.
 - 3) There were no leaks at the bulk ammonia storage tank.
 - 4) Operations notified Instrumentation and Control (I&C) personnel of the TGIS actuation and requested I&C verify the operability of the TGIS instrumentation. I&C determined the instrumentation was responding properly and that no anomalies were apparent.
- h) At approximately 1230 on 4/1/90, a Chemistry person adjusted the packing on P064 and secured the packing leak.
- i) SCE believes that the TGIS actuation was valid since: 1) there was a source of ammonia; 2) the odor of ammonia had been detected at distances from the ammonia source which were greater than the distance between the source and the TGIS sample points; 3) both TGIS ammonia channels actuated (this is not normally representative of an instrumentation anomaly);

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and 4) both TGIS monitors were subsequently found to be operating properly. Further, a review of the calibration history of the ammonia analyzers found that they normally maintain their actuation trip points within the required 2% tolerance of their setpoint.

D. CAUSE OF THE EVENT:

1. Immediate Cause:

A high ammonia gas signal caused the TGIS actuation.

2. Root Cause:

Due to the short duration of time that the ammonia was present as detected by the ammonia analyzers, the root cause cannot be conclusively determined. However, SCE believes the source of ammonia was a packing leak on P064 which existed at the time of the TGIS actuation. It is believed that wind currents may have possibly channeled the ammonia fumes from P064 packing leak to the TGIS sample points.

E. CORRECTIVE ACTIONS:

1. Corrective Actions Taken:

P064 packing was adjusted and the packing leak secured. SCE believes no further corrective actions are deemed necessary.

F. SAFETY SIGNIFICANCE OF THE EVENT:

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

G. ADDITIONAL INFORMATION:

1. Component Failure Information:

Not applicable.

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2. Previous LERs for Similar Events:

LER 87-010 (Docket 50-361) reported a TGIS actuation due to a chemical release from a cleaning agent being used in the area of the TGIS monitor sampler air inlets. The corrective actions for LER 87-010 could not have prevented reoccurrence for the event being reported in this LER, because this event did not involve the use of cleaning solvents.

3. Results of NPRDS Search:

Not applicable.