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FACIL: 50-362 San Onofre Nuclear Station, Unit 3, Southern Californ 05000362
AUTH. NAME AUTHOR AFFILIATION
MORGAN, H. E. Southern California Edison Co.
RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 87-012-00: on 870622, During safety injection tank (SIT) filling, nitrogen cover pressure decreased to 580 psig. Caused by operator failure to properly implement fill procedure. Operator diciplined & fill procedure revised. W/870722 ltr.

DISTRIBUTION CODE: IE22D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 5
TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

NOTES: ELD Chandler 1cy. 05000362

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	REG FILE 02	1	1	RES DEPY GI	1	1
	RES TELFORD, J	1	1	RES/DE/EIB	1	1
	RGN5 FILE 01	1	1			
EXTERNAL:	EG&G GROH, M	5	5	H ST LOBBY WARD	1	1
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U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/85

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
SAN ONOFRE NUCLEAR GENERATING STATION, UNIT 3	0 5 0 0 0 3 6 2	1 OF 0 4

TITLE (4)

TECHNICAL SPECIFICATION 3.0.3 ENTRY DURING SAFETY INJECTION TANK (SIT) FILLING

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQ. NUMBER	REV. NUMBER	MONTH	DAY	YEAR	FACILITY NAMES	DOCKET NUMBER(S)
										0 5 0 0 0
0 6	2 2	8 7	8 7	0 1 2	0 0	0 7	2 2	8 7		0 5 0 0 0

OPERATING MODE (9)	3	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)					
POWER LEVEL (10)	0 0 0	20.402(b)	20.405(c)	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, NRC Form 366A)		
		20.405(a)(1)(iii)	X 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	TELEPHONE NUMBER
	AREA CODE
H. E. MORGAN, STATION MANAGER	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	

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 fifteen single-space typewritten lines) (16)

At 1843 on 6/22/87, with Unit 3 in Hot Standby, during the preparation of adding water to Safety Injection Tank (SIT) T-010, the nitrogen cover pressure in T-010 decreased to 580 psig. SIT T-010 became inoperable since Technical Specification (TS) 3.5.1 specifies a nitrogen cover pressure range of 600 to 625 psig. SIT T-008 was also inoperable since its vent valve fuses had been installed in preparation for venting. Since TS 3.5.1 allows only one inoperable SIT, TS 3.0.3 was entered. At 1846, T-008 vent valve fuses were removed and TS 3.0.3 was exited. At 1855, the nitrogen cover pressure for T-010 was restored to within limits.

The cause of the event was failure of the Control Operator (CO) to properly implement the SIT fill procedure. Contrary to procedure, a drain valve was not opened prior to commencing recirculation of the SIT common fill and drain header, resulting in excessive in-leakage to T-008 which caused pressure in T-008 to increase. While initiating T-008 venting, the positon of the drain valve was noted and was opened immediately, causing the common header to depressurize which resulted in draining of T-010.

As corrective action, the CO involved received appropriate disciplinary action. The importance of properly following procedures was re-emphasized to all Unit 2 and 3 Operators. Also, the SIT fill and drain procedure will be revised to include a precaution on operating valves in the proper sequence.

There was no safety significance to this event since T-010 was returned to service within the 1-hour Action Statement and T-008 remained capable of performing its intended safety function throughout the event.

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At 1843 on 6/22/87, with Unit 3 in Hot Standby (Mode 3), during the preparation of adding water to Safety Injection Tank (SIT) T-010, the nitrogen cover pressure in SIT T-010 decreased to 580 psig. SIT T-010 became inoperable since Technical Specification (TS) 3.5.1 specifies a nitrogen cover pressure range of 600 to 625 psig. SIT T-008 was also inoperable since its vent valve fuses had been installed in preparation for venting. Since TS 3.5.1 allows only one inoperable SIT, TS 3.0.3 was entered. At 1846, SIT T-008 vent valve fuses were removed and TS 3.0.3 was exited. At 1855, the nitrogen cover pressure for SIT T-010 was restored to within limits.

The four SITs (EIIS Component Code TK)(EIIS System Code BP) are aligned to the four Reactor Coolant System (RCS) loop injection lines, and provide borated water to the RCS during large break loss of coolant accidents (LOCA) using a nitrogen cover pressure as the motive force for flow. The loop injection lines are all cross connected to each other via the SIT common fill and drain header (normally depressurized) through associated recirculation/fill valves (normally closed). Each SIT discharge line contains (in order starting nearest the SIT) a fill and drain line connection, a discharge check valve, and a discharge isolation valve (normally open). Each SIT fill and drain line is connected to the common fill and drain header and contains a fill/drain valve which is normally closed. This arrangement allows the filling of a SIT from any one of the four injection loops. (See simplified piping schematic)

SIT water levels and pressures are restricted by TS 3.5.1 to maximum and minimum values. Due to minor leakages, either from the SIT/injection loop (approx. 600 psi) to the fill and drain header or from the RCS (approx. 2200 psi) to the SIT/injection loop, it may become necessary to increase/decrease SIT water level and/or pressure as these parameters approach TS limits. For this reason, filling of SIT-010 was being initiated.

The process of filling a SIT involves pressurizing the SIT fill and drain header to approximately 100 to 200 psig above the SIT cover pressure using High Pressure Safety Injection (HPSI) pump (EIIS Component Code P)(EIIS System Code BQ) throttled discharge, and then opening the fill/drain valve (EIIS Component Code ISV) until the desired SIT water level is achieved.

Before actual filling commences, the SIT fill procedure requires HPSI flow to be recirculated through the SIT fill and drain header back to the Refueling Water Storage Tank (RWST) (EIIS Component Code TK)(EIIS System Code BP) and a chemistry sample taken to verify proper boron concentration. Recirculation is accomplished by first opening the manual isolation valve MU099 (EIIS Component Code ISV) on the SIT drain line to the RWST, starting a HPSI pump, opening a HPSI injection valve, and then opening the associated recirculation/fill valve (EIIS Component Code ISV).

The evolution requires a high level of coordination to maintain proper pressure in the common fill and drain header such that inadvertent filling or draining of other SITs does not occur. The operating instruction for SIT filling had been revised to address these concerns following a previous event (See LER 86-005, Docket No. 50-361) wherein multiple SITs were affected during filling due to excessive header pressure. Notwithstanding the delicate nature of the filling process, the operating instruction is considered to be well written as it is used frequently without undue complications.

Valve alignments were properly completed in preparation for recirculation. The next step was to open MU-099, however the evolution was momentarily stopped since a Chemistry Technician was not readily available to take samples. The operators were concerned that due to the seat leakage through SIT T-008 fill and drain valve (HV9342), opening MU-099 before recirculation has commenced could cause draining of SIT T-008 below the Technical Specification limits.

Minor in-leakage through HV9342 had occurred during previous SIT filling evolutions. This in-leakage deficiency was identified on 4/19/87 and maintenance on this valve was planned for the next outage of sufficient duration.

After the evolution was stopped, the plant equipment operator (PEO) who was assigned to open MU-099 remained in the area waiting for directions from the control room to open the valve. When a Chemistry Technician became available for sampling, the control operator (CO) was notified. The CO resumed the evolution and directed an assistant control operator (ACO) to start HPSI pump P019, however, he failed to contact and direct the PEO to open MU-099. P019 was started and the selected Loop Injection Valve (HV9332) was opened approximately 10% open.

The common SITs drain valve (HV9334) to the RWST and SIT T-010 recirculation/fill valve (HV9371) were fully opened for recirculation and sampling of the SIT fill and drain header. However, because MU-099 had not been opened, there was no path for recirculation and the fill and drain header became pressurized to the HPSI shutoff head. This had the effect of exacerbating the in-leakage through SIT T-008 fill/drain valve HV9342.

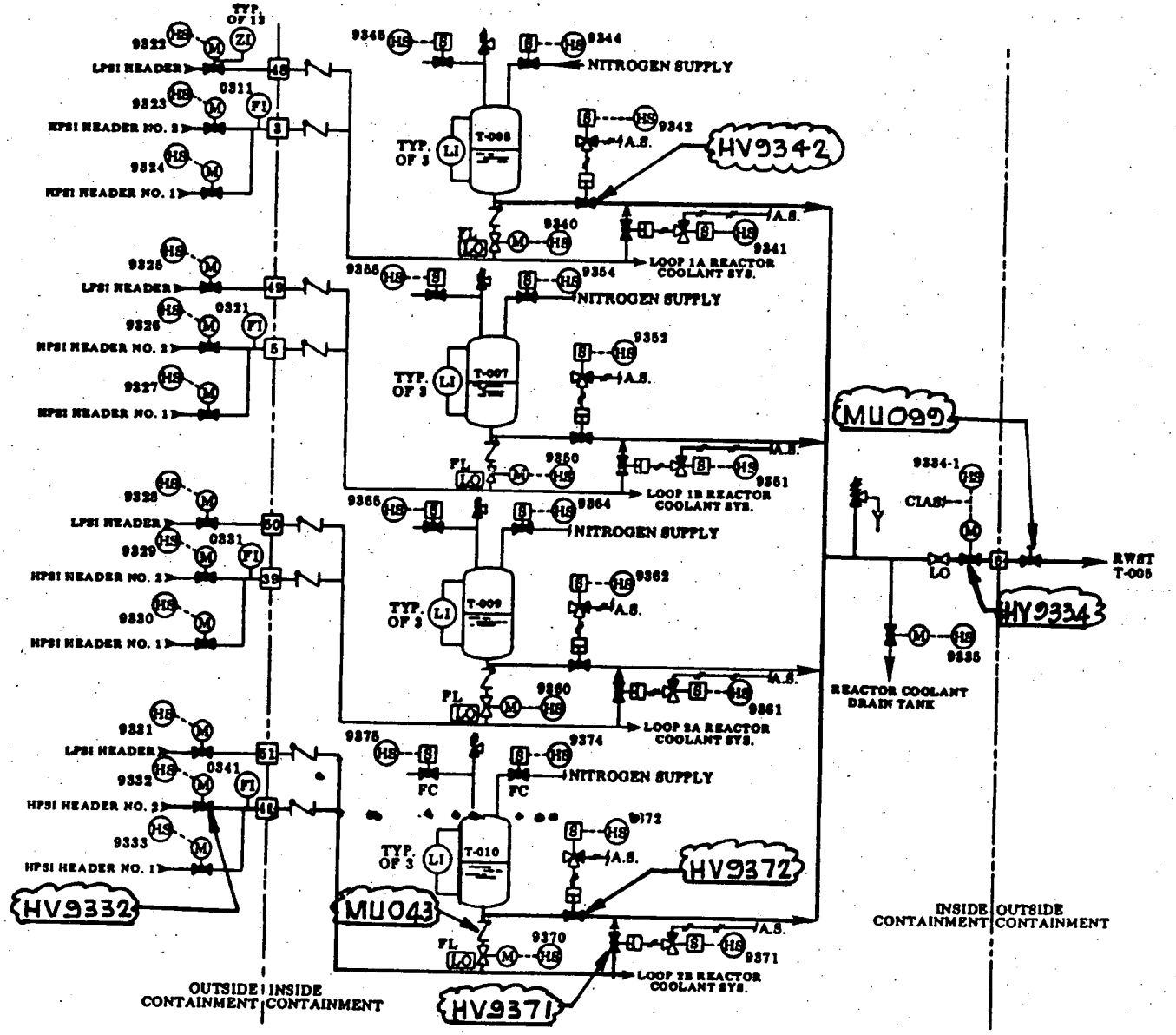
At this time, increasing pressure in SIT T-008 was noted and venting was initiated. While SIT T-008 was being vented, the control room supervisor (CRS) noted position indication for MU-099 indicated closed and immediately directed the PEO to open the valve. The PEO immediately opened MU-099. Although the CRS initiated this action to mitigate the SIT T-008 pressure rise, he did not recognize that opening MU-099 would result in depressurizing the fill and drain header and safety injection loop 2B to below SIT T-010 cover pressure.

Following opening of MU-099, the nitrogen cover pressure for SIT T-010 decreased rapidly. Operators compensated for the decrease in pressure by adding nitrogen to SIT T-010. The decrease in nitrogen cover pressure, however, continued due to decreasing SIT water level. The ACO then closed SIT T-010 recirculation/fill valve HV9371 which was previously opened. Decrease in SIT T-010 water level stabilized, and a rise in nitrogen cover pressure was noted. Loop Injection Valve HV9332 was then closed. The SIT fill evolution for SIT T-010 was subsequently performed satisfactorily in accordance with the fill procedure.

The root cause of the event was failure of the CO involved to implement the procedural steps in their proper sequence. As corrective action, the CO involved received appropriate disciplinary action. The importance of properly following procedures and attention to detail were re-emphasized to all Unit 2 and 3 Operators during shift briefings. Also, the SIT fill and drain procedure will be further revised to include a precaution on operating valves in the proper sequence. Additionally, SIT T-008 fill and drain valve is scheduled to be inspected during the next outage of sufficient duration, and repairs will be made as appropriate.

During the follow-up investigation of the event and interviews with the operators involved on 6/27/87, it was determined that flow had apparently occurred through SIT T-010 discharge check valve MU-043. RCS leakage TS Surveillance Requirement 4.4.5.2.2.d requires leak testing of MU-043 to be performed within 24 hours following flow through the valve. This surveillance was not performed because, at the time of this event, Control Room operators believed that the decrease in SIT T-010 nitrogen cover pressure was due to seat leakage of its fill and drain valve HV9372. TS 3.4.5.2 Action Statement "c" was immediately entered following the determination on 6/27/87, and verification of check valve leakage was performed satisfactorily within the 4-hour limit of the Action Statement. To prevent recurrence, the SIT fill and drain procedure will be revised to include specific direction to evaluate whether flow through the discharge check valve had occurred following an unanticipated water level decrease in any SIT.

There was no safety significance to this event since vent valve fuses were removed within 3 minutes and SIT T-008 remained capable of performing its intended safety function throughout the event. SIT T-010 was returned to service within the 1-hour Action Statement. The health and safety of plant personnel or the public was not affected by this event.



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July 22, 1987

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

Subject: Docket No. 50-362
30-Day Report
Licensee Event Report No. 87-012
San Onofre Nuclear Generating Station, Unit 3

Pursuant to 10 CFR 50.73(a)(2)(i), this submittal provides the required 30-day written Licensee Event Report (LER) for an occurrence involving the Safety Injection Tanks on the Low Pressure Safety Injection System. Neither the health and safety of plant personnel nor the health and safety of the public was affected by this occurrence.

If you require any additional information, please so advise.

Sincerely,

H E Morgan

Enclosure: LER No. 87-012

cc: F. R. Huey (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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