NRC Form 366
(9/83)

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 6

TITLE (4)

INOPERABILITY OF THE CONTAINMENT SPRAY SYSTEM

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 3	1 7	8 4	8 4	— 0 0 9	— 0 1					0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)							
1		20.402(b)		20.405(c)		50.73(a)(2)(iv)		73.71(b)
POWER LEVEL (10)		20.405(a)(1)(i)		50.36(c)(1)	X	50.73(a)(2)(v)		73.71(c)
1 0 0		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
J. G. HAYNES, STATION MANAGER	7 1 4 — 4 9 2 - 7 7 0 0

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)	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 approximately 0145, on March 17, 1984, during routine surveillance of system alignment status, with the unit in Mode 1 at approximately 100% power, manual isolation valves MU012 and MU014 were identified as closed, rendering both trains of the Containment Spray System (CSS) inoperable contrary to Technical Specification 3.6.2.1. The valves were immediately opened.

To prevent recurrence, we (1) modified procedures to clarify the valve lineup requirements and add flow verification through MU012 and MU014, (2) modified administrative procedures to provide better control of the use of valve lineup checklists, (3) will add MU012 and MU014 to our monthly valve lineup surveillance, and (4) will make improvements to our training program.

Closure of MU012 and MU014 during Mode 1 operation did not create a significant hazard to public health and safety.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQ. NUMBER	REV. NUMBER	
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TEXT (If more space is required, use additional NRC Form 366A's) (17)

On the graveyard shift on March 17 at approximately 0145, during routine surveillance of system alignment status, with the unit in Mode 1 at approximately 100% power, manual isolation valves (EIIS Component Code ISV) MU012 and MU014 were identified as closed, rendering both trains of the Containment Spray System (CSS) (EIIS System Code BE) inoperable contrary to Technical Specification 3.6.2.1. The valves were immediately opened.

The following is a sequence of events surrounding the discovery of the closed valves:

02/27/84 0520 Unit entered Mode 4 from Mode 5. Procedure SO23-3-2.9, "Containment Spray/Iodine Removal System Operation," Checklist 5.1, was performed to align CSS in preparation for Mode 3 entry. MU012 and MU014 were verified locked open, and this condition was documented on Checklist 5.1.

A need to return to Mode 5 was identified to allow repair of High Pressure Safety Injection (HPSI) (EIIS System Code BQ) valve 3HV9327 (EIIS Component Code ISV).

02/28/84 2135 Valve alignment for going back on shutdown cooling was verified. MU012 and MU014 were closed in accordance with Procedure SO23-3-2.6, "Shutdown Cooling System Operation - Unit 3," and Shutdown Cooling System (SCS) (EIIS System Code BO) was placed in service.

02/29/84 0029 The unit entered Mode 5 to facilitate disassembly and repair of valve 3HV9327.

03/02/84 Following repair of 3HV9327 appropriate Piping and Instrumentation Diagrams (P&ID's) were checked by the Control Room Supervisor and a partial valve alignment checklist was developed from Checklist 5.1 of Procedure SO23-3-2.9 which had been performed on February 28, 1984, to realign CSS in preparation for Mode 3 entry. The concept of not doing a complete alignment was agreed to by the Shift Superintendent since a complete alignment had been done four days earlier and no work had been done on the CSS. CSS valves MU012 and MU014 were erroneously omitted from the list.

Although the unit has gone from SCS operation (Mode 5) to Mode 4 seven times, this was the first time that a Mode 5-4-5-4 evolution (in five days or less) has occurred. Mode 5-4 and Mode 5-4-5-4 evolutions have occurred on Unit 2 eighteen and one time(s), respectively.

03/07/84 2120 Unit entered Mode 1.

03/10/84 2240 Unit tripped on low condenser vacuum.

03/12/84 2030 Unit entered Mode 1.

03/17/84 0145 A Nuclear Plant Equipment Operator (NPEO) on routine equipment rounds, discovered CSS valves MU012 and MU014 closed.

0200 The NPEO notified the Unit 3 Control Operator and was directed to lock open the valves. The valves were immediately locked open.

Based on the sequence of events above and further investigation, inoperability of the CSS resulted from the following circumstances:

Administrative Procedure S023-0-35, "Use of Procedures," provides authorization for an SRO Supervisor to designate only a portion of a checklist for use when circumstances warrant. This authorization was included in our program to avoid errors resulting from development of special purpose checklists when conducting retests following correction of component failures within lengthy surveillance procedures, for example. Other objectives of this provision included ALARA exposure, where complete system alignment checklists include vents and drains in high radiation areas which were not affected by a particular evolution, and secondary plant equipment alignments which usually involve only a portion of any one system checklist. This authorization was not intended for use in establishing a partial checklist of main process valves when performing a system evolution such as leaving shutdown cooling alignment and establishing CCS operability. However, this intent was not clear. In this case, the authorization was used to, in effect, revise the procedure intended to establish CSS operability contrary to the intent.

Administrative Procedure S023-0-36, "Control of System Alignments," also permits use of partial checklists in order to encourage "third checks" of system alignments in selected circumstances, such as following maintenance activities which are required to fully restore system alignments, but where a redundant verification is considered prudent. However, this unfortunately contributed to the understanding that use of a partial checklist was sanctioned generally, and led to the decision, as described in the sequence of events above, to use a partial checklist to restore CSS operability on March 2.

The Control Room Supervisor (an SRO) did not recognize that the containment spray pump manual discharge isolation valves are closed when entering the shutdown cooling alignment. Therefore, in designating the subset of CSS valves to be repositioned and verified upon leaving the shutdown cooling alignment, valves MU012 and MU014 were omitted and remained closed until identified on March 17. No P&ID is provided to explicitly show the valve alignment for shutdown cooling. Also, no partial checklist is provided for the subset of CSS valves required to be repositioned when leaving shutdown cooling. Accordingly, no effective procedural means was provided to ensure MU012 and MU014 would be opened short of reperforming the entire CSS valve alignment checklist. As described in the sequence of events above, since the entire checklist had been performed only 4 days earlier, the Control Room Supervisor and the Shift Superintendent considered that it did not need to be reperformed.

The following corrective actions were immediately taken upon discovery of the closed valves:

Checks were made of selected other CSS and Safety Injection System (SIS) (EIIS System Code BQ) valve alignments. No other discrepancies were identified.

Administrative procedures were temporarily revised to require that two SRO's approve any use of only a portion of a valve alignment checklist. This was done to provide added assurance that all valves effected by a particular system evolution are included in the alignment and verification is performed. (Further investigation has resulted in modification of this action by imposing controls required for procedure changes as described below.)

For each instance that a valve alignment checklist is utilized, an unused checklist form will be obtained and filled in. Previously completed checklists will not be modified to create a new checklist as was done on March 2. This will provide added assurance that the valves included on a partial checklist are completely and clearly defined.

A review has been accomplished for the CSS operating procedure which resulted in a revision of Procedure S023-3-2.7, "Safety Injection System Operation" to require verification of flow through valves MU012 and MU014 following return from the shutdown cooling alignment. This will provide added assurance that the valve realignment was properly performed.

Other corrective actions which have been taken are as follows:

In addition to the Unit 3 checks of selected CSS and SIS valve alignments, suction and discharge valves for the pumps in these systems have been verified to be positioned correctly on Unit 2.

The Operating Procedure S023-3-2.6 for the shutdown cooling system has been revised to include locking open valves MU012 and MU014 upon leaving shutdown cooling. This will provide additional assurance that use of the shutdown cooling procedure will result in correct system alignment without reliance on the containment spray/iodine removal system operating procedure.

Based on the results of our investigation of this event, below is a list of additional corrective actions and a schedule for their completion:

As described above, administrative procedures were immediately revised to require that two SRO's approve any use of only a portion of a valve alignment checklist. Further review has resulted in the decision to require instead that any use of a portion of a valve alignment checklist in connection with a procedure, or the establishment of an abnormal valve alignment, will be subject to the same approvals as a temporary change to a procedure as described in section 6.8.3 of the Technical Specifications. This will be accomplished through revision of Procedures S023-0-36 and S023-5-1.3 "Plant Startup from Cold Shutdown to Hot Standby" and will be completed by July 2, 1984.

The monthly surveillance checklist will be revised to include valves MU012 and MU014 and other similarly locked main process valves in safety systems which are not in normal operation. This will provide added assurance of a proper alignment of these valves. Appropriate operating procedures will be revised by July 2, 1984.

Piping and Instrumentation Diagrams (P&ID) for system alignments for the various shutdown cooling system configurations will be developed. This will assist Operators in identification of proper valve alignment positions. This will be completed by June 1, 1984.

Operating procedures will be revised to include an additional valve alignment checklist, wherever required. The existing checklist will be split and one will include all valves in the main process flow stream for designated systems such as the Emergency Core Cooling System and Auxiliary Feedwater System. The other checklist will contain vents, drains and instrument valves. This will provide for use of a pre-planned partial system checklist when use of a complete checklist is not warranted, and it will reduce the need for preparing special partial valve alignment checklists. This will be accomplished by July 2, 1984.

Also, operating procedures will be revised to define when these partial checklists may be used in lieu of the complete system checklists. This will be accomplished through revisions to Procedures S023-0-35 and S023-0-36 and will be completed by July 2, 1984.

The training program is being re-examined and will be revised to provide additional emphasis on operator recognition of proper system alignments during various plant evolutions. This is intended to provide increased operator understanding of correct valve alignment position in differing system configurations. Increased emphasis will be provided in our operator training program on overviewing system operating and realignment evolutions associated with changes in mode and function. This training will be provided in our operator requalification program and is expected to be completed by July 9, 1984.

Our investigation has included a review of the function of the CSS and an evaluation of the safety significance of the closure of valves MU012 and MU014. Based on our analysis, using the same analytical techniques presented in the FSAR, it has been demonstrated that isolation of the CSS by closure of the valves did not create a significant hazard to public health and safety.