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Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

DOCKET 50-255 - LICENSE DPR-20 - PALISADES PLANT -
LICENSEE EVENT REPORT 90-005 - INOPERABILITY OF AUXILIARY FEEDWATER SYSTEM
RESULTS FROM ERROR DURING RESTORATION OF BACKUP NITROGEN STATION FOLLOWING
BOTTLE REPLACEMENT

Licensee Event Report (LER) 90-005 (Inoperability of Auxiliary Feedwater
System Results from Error During Restoration of Backup Nitrogen Station
Following Bottle Replacement) is attached. This event is reportable to the
NRC per 10CFR50.73(a)(2)(i).

Brian D Johnson
Staff Licensing Engineer

CC Administrator, Region III, USNRC
NRC Resident Inspector - Palisades

Attachment

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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) PALISADES NUCLEAR PLANT DOCKET NUMBER (2) 0 5 0 0 0 2 1 5 5 PAGE 1 OF 14

TITLE (4) INOPERABILITY OF AUXILIARY FEEDWATER SYSTEM RESULTS FROM ERROR DURING RESTORATION OF BACKUP NITROGEN STATION FOLLOWING BOTTLE REPLACEMENT

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)
03	06	90	90	005	00	05	04	90	N/A		0 5 0 0 0
									N/A		0 5 0 0 0

OPERATING MODE (9) N THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)

POWER LEVEL (10) 0 8 0	20.482(b)	20.482(c)	20.73a(2)(iv)	73.71(b)
	20.482a(1)(i)	20.38a(1)	20.73a(2)(v)	73.71(c)
	20.482a(1)(ii)	20.38a(2)	20.73a(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 305A)
	20.482a(1)(iii)	X 20.73a(2)(ii)	20.73a(2)(vii)(A)	
	20.482a(1)(iv)	20.73a(2)(iii)	20.73a(2)(viii)(B)	
	20.482a(1)(v)	20.73a(2)(iv)	20.73a(2)(ix)	

LICENSEE CONTACT FOR THIS LER (12)

NAME C S KOZUP, TECHNICAL ENGINEER, PALISADES TELEPHONE NUMBER 611 16 716 41-1819 113

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS
				NO					

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE) NO X

EXPECTED SUBMISSION DATE (15)

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

ABSTRACT

At 0215 hours on March 6, 1990 the Plant was operating at 80 percent reactor power, with the Primary Coolant System at approximately 556 degrees F and 2060 psia. During a walkdown of the Plant it was identified that some of the bottles on backup nitrogen stations 1 and 2 were isolated due to mispositioned valves. The valves were opened and the gas bottles were immediately returned to service. It was subsequently determined that the isolated bottles had resulted in inoperability of components associated with nitrogen station 1 for a period greater than allowed by Technical Specifications (TS).

The condition described in this report resulted when gas bottles were not correctly returned to service following bottle replacement, and was caused by personnel error. The condition described in this report did not involve any failed components or systems. As corrective action, independent verification of valve positions following bottle replacement on the backup nitrogen stations will be included in an operating procedure. Also, startup checklists and the Engineered Safety Features alignment procedure have been revised to verify that applicable valves for TS required nitrogen stations are properly positioned. Additionally, a pressure gauge will be placed in the nitrogen bottle storage area so that bottle charge can be verified prior to removal from the storage area.

Event Described

At 0215 hours on March 6, 1990 the Plant was operating at approximately 80 percent reactor power, with the Primary Coolant System (AB) at approximately 556 degrees F and 2060 psia. During a walkdown of the Plant that was being performed to checkout an operator (unlicensed, utility) on the Auxiliary Feedwater (AFW) System (BA), a Senior Reactor Operator (licensed, utility) identified a manifold (GBM) isolation valve (SV) on backup nitrogen supply station 2 (LK) that was mispositioned. The valve was opened and the affected gas bottles (GBM) were immediately returned to service. A verification of proper valve position was also performed immediately for the other backup nitrogen stations. This verification identified and corrected a mispositioned bottle (TK) isolation valve on backup nitrogen station 1.

Backup nitrogen station 1 provides a redundant source of compressed gas to the two air-operated valves (CV-0727, CV-0749) that control AFW flow (FCV) to the steam generators (BLR). The air operated steam inlet valve (CV-0522B) and air-operated steam pressure regulating valve (PCV-0521A) (PCV) for turbine driven Auxiliary Feedwater Pump P-8B(P) are the only significant components which utilize backup nitrogen station 2 as their redundant supply of compressed gas. The normal source of compressed gas for the previously mentioned AFW valves is the instrument air system (LE). Although backup nitrogen stations 1 and 2 are not specifically required by Technical Specifications, they are required to maintain operability of AFW system components that are needed to mitigate the consequences of a postulated event involving a fire that also results in a loss of AC power (EB) to the instrument air compressors (CMP).

An engineering evaluation (E-PAL-90-008-01) has been performed to determine the effect that the mispositioned valves had on the operability of the equipment associated with backup nitrogen stations 1 and 2. The results of this evaluation indicate that backup nitrogen station 1 is fully capable of performing its intended function in the as-found condition, with one of four gas bottles isolated. Based on the results of this evaluation it was concluded that operability of the AFW flow control valves associated with backup nitrogen station 1 was not adversely affected by incorrect positioning of a single bottle isolation valve (N2-285).

The engineering evaluation also determined that backup nitrogen station 2 would not be able to fully perform its intended function in the as-found condition, with four of eight gas bottles isolated. As a result, it has been determined that the steam inlet valve and steam pressure regulating valve for turbine driven Auxiliary Feedwater Pump P-8B were inoperable during the period when the nitrogen manifold valve (N2-248) was not identified as mispositioned. It was subsequently determined that unavailability of backup nitrogen station 2 also resulted in inoperability of the AFW components associated with that nitrogen station for a period greater than allowed by Technical Specifications (TS).

Investigation into the cause of the mispositioned nitrogen station valves identified that the gas bottles on backup nitrogen station 2 were last replaced approximately 23.5 days prior to discovery, at 1200 hours on February 10, 1990. Although a conclusive date for the last bottle replacement on backup nitrogen station 1 could not be identified, it is believed to have been before June 1989. The operator (non-licensed, utility) who performed the last bottle replacement on nitrogen station 2 indicated that he may not have opened the manifold isolation valve after he replaced the bottles, and that this error may have been initiated by a distraction that resulted when he realized that a gas bottle which he had taken from the bottle storage area and installed on the nitrogen supply station was not full, as he had expected.

A corrective action document was initiated on March 6, when the improperly positioned nitrogen station valves were first identified. However, the effect of this condition on the operability of Technical Specification required equipment and the design basis of the Plant was not recognized until the corrective action document was presented at a Plant Review Committee meeting on April 4, 1990. As a result, reportability of the condition described in this report remained unidentified until April 4, 1990.

Cause of Event

It is believed that the incorrectly positioned valve on backup nitrogen station 2 resulted when an operation (unlicensed, utility) did not valve all of the appropriate gas bottles into service following bottle replacement, and that this condition was caused by personnel error. The error involved actions that were not included in an approved procedure, and was contributed to by an unusual condition of the workplace. The cause and circumstances surrounding the isolated bottles on backup nitrogen station 1 cannot be determined, but it is believed to be the result of an error similar to the one which occurred on nitrogen station 2.

Corrective Action

As corrective action, bottle replacement for the backup nitrogen stations will be included in an operating procedure. This procedure will include Shift Supervisor authorization of bottle replacement on backup nitrogen stations, guidance regarding when to notify the Shift Supervisor that a Limiting Condition for Operation has been entered for a backup nitrogen station, and independent verification of backup nitrogen station valve positions following bottle replacement. Completion of this procedure is currently scheduled for August 27, 1990.

Additionally, startup checklists 12.5, 12.6, and 15.1 have been revised to verify that the applicable valves for Technical Specification required backup nitrogen stations 1, 2 and 3B are properly positioned prior to startup, and procedure MO-29, "Engineered Safety Features Alignment", has been revised to verify that the applicable valves for these nitrogen stations are properly positioned on a monthly basis. Also, a pressure gauge (P) will be placed in the turbine building nitrogen bottle storage area so that operators will be able to verify that bottles are fully charged prior to removing them from the

storage area. Placement of a pressure gauge in the turbine building nitrogen bottle storage area is currently expected to be complete by May 7, 1990.

Analysis of Event

Compressed gas is required to operate the steam supply valve (CV-0522B) and steam pressure regulating valve (PCV-0521A) to turbine driven Auxiliary Feedwater Pump P-8B. Compressed gas is also required to operate the two valves (CV-0727, CV-0749) that control AFW flow to the steam generators. The backup compressed gas supply to valves CV-0522B and PCV-0521 is provided by backup nitrogen station 2. Nitrogen station 1 provides a backup source of compressed gas to the valves that control AFW flow to the steam generators. Backup nitrogen stations 1 and 2 are both intended to provide a temporary, 12 hour, supply of compressed gas in the event of a fire that results in a loss of AC power to the instrument air compressors. It has been determined that the condition described in this report only affected operability of the components associated with nitrogen station 2, and that operability of the components associated with nitrogen station 1 was unaffected by the mispositioned manifold isolation valve.

Actual Plant conditions did not require initiation of the protective features associated with the AFW system or the backup nitrogen stations during the period when the isolated gas bottles were unidentified. However, if Plant conditions had necessitated use of the AFW steam inlet and the turbine control valves associated with backup nitrogen station 2, procedurally directed operator actions could have been taken to restore the isolated bottles and make them available for use, the unisolated bottles were available and capable of providing a compressed gas supply for several hours, and operator training and procedures adequately address the actions to be taken when the pneumatic power supply to the AFW control valves is low or unavailable. As a result, the condition identified in this report did not adversely impact the operational safety of the plant, or the safety of plant personnel or the general public.

Additional Information

There have been no previous events reported for inoperability of a backup nitrogen station.