

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) PALISADES PLANT										DOCKET NUMBER (2) 0 5 0 0 0 2 5 1 5										PAGE (3) 1 OF 0 4																								
TITLE (4) INADEQUATE PROCEDURE RESULTS IN VALVE TESTING DURING PROHIBITED CONDITIONS																																												
EVENT DATE (5) MONTH DAY YEAR 0 3 0 4 8 8 8 8									LER NUMBER (6) YEAR SEQUENTIAL NUMBER REVISION NUMBER 8 8 0 0 5 0 1 0 2 0 6 8 9									REPORT DATE (7) MONTH DAY YEAR 0 3 0 4 8 8 8 8									OTHER FACILITIES INVOLVED (8) FACILITY NAMES N/A DOCKET NUMBER(S) 0 5 0 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) 1 0 0									20.402(b) 20.408(a)(1)(i) 20.408(a)(1)(ii) 20.408(a)(1)(iii) 20.408(a)(1)(iv) 20.408(a)(1)(v)									20.408(e) 80.38(a)(1) 80.38(a)(2) 80.73(a)(2)(i) 80.73(a)(2)(ii) 80.73(a)(2)(iii)									80.73(b)(2)(iv) 80.73(b)(2)(v) 80.73(b)(2)(vi) 80.73(b)(2)(vii)(A) 80.73(b)(2)(vii)(B) 80.73(b)(2)(ix)									73.71(b) 73.71(c) OTHER (Specify in Abstract below and in Text, NRC Form 305A)								
LICENSEE CONTACT FOR THIS LER (12)																																												
NAME C S Kozup, Technical Engineer, Palisades																				TELEPHONE NUMBER AREA CODE 6 1 1 6 7 1 6 4 - 1 8 9 1 3																								
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																																												
CAUSE		SYSTEM		COMPONENT		MANUFACTURER		REPORTABLE TO NPDs		CAUSE		SYSTEM		COMPONENT		MANUFACTURER		REPORTABLE TO NPDs																										
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SUPPLEMENTAL REPORT EXPECTED (14)																																												
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ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On March 4, 1988 during a review of Technical Specification (TS) Surveillance Test QO-5, "Valve Test Procedure", the stroking of the service water containment isolation valves CV-0824 and CV-0847 [BI;ISV] for the containment air coolers [BK;CLK] was discovered to have occurred during prohibited conditions. These valves are containment isolation valves and will isolate if a large break of the service water line occurs inside containment. However, with a safety injection signal or a containment isolation signal, these valves remain open to supply service water to the containment air coolers. The stroking of these valves momentarily defeats the design safety function of these valves; ie, remain open and supply service water. TS 3.4.2 allows a total of two components to be inoperable, but cycling of these valves would render all three containment air coolers inoperable. During the same review, a similar problem was noted with the stroking of the non-critical service water isolation valve CV-1359 [KG;ISV] in both TS Surveillance Tests QO-1 and QO-5.

These occurrences have been attributed to procedure deficiencies resulting from inadequate procedure development and review. The administrative controls for the review of procedures have been strengthened. A review of other TS tests to determine if similar conditions existed did not identify other tests where conditions outside TS were introduced by test performance.

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U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/85

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

Description

On March 4, 1988 during a review of Technical Specification (TS) Surveillance Test QO-5, "Valve Test Procedure", the stroking of the service water containment isolation valves CV-0824 and CV-0847 [BI;ISV] for the containment air coolers [BK;CLK] was discovered to have occurred during prohibited conditions. These valves are containment isolation valves and will isolate if a large break of the service water line occurs inside containment. However, with a safety injection signal or a containment isolation signal, these valves remain open to supply service water to the containment air coolers. The stroking of these valves momentarily defeats the design safety function of these valves; ie, remain open and supply service water. TS 3.4.2 allows a total of two components to be inoperable, but cycling of these valves would render all three containment air coolers inoperable.

During the same review, a similar problem was noted with the stroking of the non-critical service water isolation valve CV-1359 [KG;ISV]. During the performance of QO-5, CV-1359 is stroked from the Control Room [NA]. In order to perform this stroking without disrupting the service water flow to secondary side of the Plant, the manual bypass valve MV-SW101 [KG;V] is opened. CV-1359 receives a close signal whenever the safety injection system actuates in order to assure adequate cooling flow to the engineered safety equipment. The opening of MV-SW101 defeats the design feature of CV-1359 to isolate the non-critical service water loads in an accident. The opening of MV-SW101 is conducted by an auxiliary operator who remains at the valve until CV-1359 is stroked and then closes the bypass valve. The total evolution of opening the manual valve, stroking the control valve and reopening the manual valve generally is accomplished within approximately ten minutes.

Further engineering review of TS Surveillance Procedures associated with non-critical service water system [KG] isolation, identified that manual bypass MV-SW101 was opened while CV-1359 is stroked during performance of Surveillance Test QO-1, "Safety Injection System". A review of surveillance test schedules identified that QO-1 was to be performed twice prior to plant conditions that would allow opening of MV-SW101 in accordance with TS 3.4.1. Therefore, a TS interpretation or surveillance test exemption was deemed necessary. Operation of isolation valve CV-1359 is controlled by TS 3.4.1 which requires service water pump valves, piping and interlocks to be operable. TS 3.4.2 allows one component associated with containment cooling to be inoperable provided corresponding redundant components are tested. However, the non-critical service water header isolation valve CV-1359 can be assumed to have no redundant component since there is only one isolation valve.

An interpretation of TS 3.4 was submitted to the NRC on April 6, 1988. This interpretation noted the factors listed above, and that if service water flow was partially diverted due to failure of CV-1359 to close, the critical component cooling function would not be lost as long as all

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three service water pumps were operable; ie, the third service water pump is the functionally redundant component. Subsequently, provisions were made to assure an auxiliary operator remain in the vicinity of MV-SW101 during the surveillance test. Additional provisions were emplaced such that prior to test performance, both diesel generators would be verified as operable via a status board check and idle service water pump(s) would be verified operable via a test starting. On May 6, 1988 the NRC documented their acceptance of this interpretation with the temporary provisions. This letter further noted CP's intent to modify test circuitry of the safety injection system to block the stroking of CV-1359. This modification was completed during the recent refueling outage.

Cause Of The Event

The cause of the procedural inadequacies of QO-1 and QO-5 were the result of inadequate procedure development and review. The present administrative controls for procedure reviews do not assign responsibility to ensure the TS requirements are properly addressed. Presently, Administrative Procedure 9.21, "Technical Specification Surveillance Procedure Development" requires the technical reviewer to ensure that "precautions and limitations are adequate and that they recognize limiting conditions of operation entered during the conduct of the test or which must be addressed if equipment is determined to be inoperable". However, the technical reviewer is often only cognizant of several of the systems on the test and not all of them. For tests which involve Operations during the performance of the test an Operations review is required, however, no guidance was given on how to perform an Operations review.

Corrective Action

Administrative Procedure 9.21 has been revised to include guidance on how to perform an Operations review. As part of the Operations review, TS requirements will be reviewed to ensure they are adequately addressed during the performance of the TS test.

In addition to the TS interpretation received in regard to the performance of Surveillance Test QO-1 and the modification to block the stroking of CV-1359 during a simulated safety injection system actuation signal, the requirement to stroke time CV-1359 was added to QO-6, "Cold Shutdown Valve Test Procedure" which is conducted in the cold shutdown condition. For QO-5, the test methodology was revised to also place the stroking of CV-0824, CV-0847 and CV-1359 into Surveillance Test QO-6.

A review of other TS tests was conducted to determine if similar conditions existed. This review revealed no other tests where conditions outside TS were introduced by test performance. During this review it was noted that several surveillance tests required enhancement

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to identify limiting conditions of operation entered during test performance. Procedural revisions to include these enhancements have been completed.

Analysis Of The Event

The closure of CV-0824 and CV-0847 would render all three containment air cooler fans inoperable due to the loss of service water until the valves are reopened. The cycling interval takes a maximum of five minutes to complete and is accomplished by a Control Room operator operating the valves from the Control Room. The limiting accident would be a LOCA coincident with a loss of offsite power which has a probability of occurring at approximately $3.0 \text{ E-}8$ events per hour. For the LOCA with a loss of offsite power, the containment pressure would be controlled within the accident limits by the containment spray system.

The cycling of CV-1359 resulted in the opening of MV-SW101 for a maximum of 15 minutes and is accomplished by an auxiliary operator in conjunction with a Control Room operator. The auxiliary operator opens the bypass valve, the control operator cycles CV-1359 then the auxiliary operator closed the bypass valve. The limiting condition would be a LOCA as above with the containment air coolers receiving less than design flow due to the bypass valve open. However, containment pressure would be controlled within the accident limits by the containment spray system until full service water flow could be restored.

No adverse risk to the safety of the public resulted due to the low probability of occurrence of an accident coincident with the short time which the above valves were inoperable.

Additional Information

Two related reportable events involving inadequate reviews of TS tests were:

Licensee Event Report 83-039 H₂ Recombiners Tested Simultaneously
Licensee Event Report 86-021 Inoperable Containment Building Water Level Instrument



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DOCKET 50-255 - LICENSE DPR-20 - PALISADES PLANT -
LICENSEE EVENT REPORT 88-005-01 - INADEQUATE PROCEDURE RESULTS IN VALVE
TESTING DURING PROHIBITED CONDITIONS

Licensee Event Report (LER) 88-005-01 (Inadequate Procedure Results in Valve
Testing During Prohibited Conditions) is attached. This event is reportable
to the NRC per 10CFR50.73(e)(2)(i).

Brian D Johnson
Staff Licensing Engineer

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

Attachment

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