NRC Form 366 (9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
PALISADES NUCLEAR PLANT	0 5 0 0 0 2 5 5	1 OF 0 4

TITLE (4)

FOREIGN MATERIAL ON VALVE SEAT RESULTS IN INOPERABLE ISOLATION VALVE

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)
									N/A	0 5 0 0 0
1 2	0 2	8 8	8 8	— 0 2 2	— 0 0	1 2	2 8	8 8	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 1 5	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)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
		20.405(a)(1)(iv)	X 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
CSKozup, Technical Engineer, Palisades	AREA CODE 6 1 6 — 7 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 NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS
X	W D	I S V	M 1 2 0	NO					

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)

Abstract

During the performance of Technical Specification (TS) Surveillance Test QO-11, "Containment Isolation Check Valve Test" on December 2, 1988, inner containment isolation valve CV-1037 [WD;ISV] was discovered to be leaking by in excess of allowed TS limit, however, integrity of the outer containment isolation check valve CK-CRW408 was maintained. TS 4.5.2 requires that the total leakage from all penetrations and isolation valves remain under $0.60L_a$. At 2216 when this condition was identified, the reactor was critical with the Plant operating at 35.2 percent of rated power.

In attempting to identify the root cause of CV-1037's failure, it was flushed and cycled several times. During this evolution, the valves stem was observed to be traveling further closed upon each cycle. At this time mechanical binding of valve internals was the suspected cause. However, when the valve was disassembled, a small unidentifiable hardened green plastic object was found adhered to the valve's plug. This plastic appeared to have been chipped away by cycling the valve such that acceptable seating was achieved prior to valve repair.

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Description

During the performance of Technical Specification (TS) Surveillance Test QO-11, "Containment Isolation Check Valve Test" on December 2, 1988, inner containment isolation valve CV-1037 [WD;ISV] was discovered to be leaking by in excess of allowed TS limit, however, integrity of the outer containment isolation check valve CK-CRW408 was maintained. TS 4.5.2 requires that the total leakage from all penetrations and isolation valves remain under $0.60L_a$. At 2216 when this condition was identified, the reactor was critical with the Plant operating at 35.2 percent of rated power.

TS Surveillance Test QO-11 is performed at three month intervals in accordance with TS 4.5.2.d.2. This test verifies the ability of containment isolation check valves to close in order to achieve their required safety position per ASME Section XI. During test performance, a reverse pressure is applied across the check valve seat and flow is verified to be secured by monitoring test pressure decay rates.

Containment isolation valve CV-1037 is associated with containment penetration 67 which services the clean waste receiver tank pump P-70 [WD;P] recirculation line. Penetration 67 is classified as a Palisades Final Safety Analysis Report (FSAR) class C2 penetration. Penetrations in this class include systems that are not connected to either the containment atmosphere or to the primary coolant system and are normally open or may be opened during power operation. Pipe lines passing through the containment, associated with FSAR class C2 penetrations are required to have two automatic isolation valves in series. Check valves are considered to be automatic. Penetration 67 meets this requirement via CV-1037 and CK-CRW408 being in series, with CV-1037 receiving an automatic close signal upon actuation of the containment isolation system.

During the performance of QO-11, CK-CRW408 is tested by applying 80 psia of air pressure between it and CV-1037. A test fixture is attached at a test tap to monitor pressure decay. When this test was performed on December 2, 1988, the acceptance criteria of maintaining greater than 69.7 psia of air pressure for five minutes was not met. This determination was made at 2136. At 2216, it was determined that CV-1037 and not CK-CRW408 was leaking by. This was determined by opening an in-containment valve (CV-1018) upstream of CV-1037. When the valve was opened, the test pressure rapidly dropped off, thus confirming CV-1037 was leaking by.

At this time, Operations personnel entered TS 3.0.3 and initiated a series of line flushes and valve cycling operations in attempting to get CV-1037 to seat properly. At 2316, it was determined that CV-1037 was functioning properly, so TS 3.0.3 was exited.

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

Cause Of The Event

In attempting to identify the root cause of CV-1037's failure, it was flushed and cycled several times. During this evolution, the valves stem was observed to be traveling further to closed upon each cycle. At this time mechanical binding of valve internals was the suspected cause. However, when the valve was disassembled, a small unidentifiable hardened green plastic object was found adhered to the valve's plug. This plastic appeared to have been chipped away by cycling the valve such that acceptable seating was achieved prior to valve repair.

The source of the hardened green plastic object is not known, however, it is felt to be an isolated occurrence resulting from maintenance activities.

Corrective Action

CV-1037 was disassembled, inspected and repaired. During this repair, the valve packing was upgraded by installation of graphite packing to minimize mechanical binding. Valve operability was confirmed by the satisfactory performance of the Local Leak Rate Test RO-32-367.

During this event, Operations personnel noted that QO-11 prescribed actions for test results not meeting acceptance criteria entailed retesting, initiating corrective action documents and initiating applicable local leak rate tests during the next cold shutdown condition. However, no reference was made to potentially applicable TS Limiting Conditions of Operation.

Therefore, actions prescribed within QO-11 are being evaluated to assure proper actions are taken to preclude potential TS violations regarding containment integrity.

Procedures regarding cleanliness control have recently been upgraded to aide in precluding foreign materials and tools from entering Plant system.

Analysis Of The Event

During the one hour period when CV-1037 was declared inoperable, the integrity of the outer most containment isolation valve CV-CRW408 was maintained. Therefore, at no time was there leakage from the Containment Building in excess of Plant TS. TS 3.6 requires that containment integrity be maintained unless the reactor is in the cold shutdown condition. TS 1.4, as it applies to automatic isolation valves, is defined to exist when "all automatic containment isolation valves are operable or are locked closed". In that CV-1037 was not operable and was not locked closed, this event is being reported per 10CFR50.73(a)(2)(ii) as an operational condition prohibited by Plant TS.

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

Additional Information

Containment isolation valve, CV-1037 is a Masoneilan Division model number 38-20571 control valve.

For additional information regarding inoperable containment isolation valves, reference Licensee Event Reports 87-005, 87-026, 85-029, 83-059, 83-066 and 81-036.

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Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

DOCKET 50-255 - LICENSE DPR-20 - PALISADES PLANT -
LICENSEE EVENT REPORT 88-022 - FOREIGN MATERIAL ON
VALVE SEAT RESULTS IN INOPERABLE ISOLATION VALVE

Licensee Event Report (LER) 88-022 (Foreign Material on Valve Seat Results in Inoperable Isolation Valve) is attached. This event is reportable to the NRC per 10CFR50.73(a)(2)(ii).

Brian D Johnson
Staff Licensing Engineer

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

Attachment

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