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February 7, 1990  
CPY-050-90

U.S. Nuclear Regulatory Commission  
Document Control Desk  
Washington DC 20555

Gentlemen:

Licensee Event Report No. 90-01 is attached. This report discusses an event in which Containment Integrity was compromised due to failure to perform local leak rate testing on the inboard Containment Personnel Air Lock equalizing valve.

Sincerely,

  
C. F. Yundt  
General Manager  
Trojan Nuclear Plant

c: Mr. John B. Martin  
Regional Administrator, Region V  
U.S. Nuclear Regulatory Commission

Mr. David Stewart-Smith  
State of Oregon  
Department of Energy

Mr. R. C. Barr  
USNRC Resident Inspector  
Trojan Nuclear Plant

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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Trojan Nuclear Plant	0 5 0 0 0 0 3 4 4	1 OF 0 3

TITLE (4)  
Failure To Test Containment Personnel Air Locks Equalizing Valve Compromised  
Containment Integrity Due To Procedural Inadequacy

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)
0	1	0	9	9	0	9	0	0	N/A		0 5 0 0 0 0
0	1	0	9	9	0	9	0	0			0 5 0 0 0 0

OPERATING MODE (9)  1

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

20.402(b)	<input type="checkbox"/>	20.405(e)	<input type="checkbox"/>	50.73(a)(2)(iv)	<input type="checkbox"/>	73.71(b)	<input type="checkbox"/>
20.405(a)(1)(iii)	<input type="checkbox"/>	50.38(a)(1)	<input type="checkbox"/>	50.73(a)(2)(v)	<input type="checkbox"/>	73.71(c)	<input type="checkbox"/>
20.405(a)(1)(iv)	<input type="checkbox"/>	50.38(a)(2)	<input type="checkbox"/>	50.73(a)(2)(vi)	<input type="checkbox"/>	OTHER (Specify in Abstract below and in Text, NRC Form 366A)	
20.405(a)(1)(v)	<input type="checkbox"/>	50.73(a)(2)(i)	<input type="checkbox"/>	50.73(a)(2)(vii)(A)	<input type="checkbox"/>		
20.405(a)(1)(vi)	<input type="checkbox"/>	50.73(a)(2)(ii)	<input checked="" type="checkbox"/>	50.73(a)(2)(vii)(B)	<input type="checkbox"/>		
20.405(a)(1)(vii)	<input type="checkbox"/>	50.73(a)(2)(iii)	<input type="checkbox"/>	50.73(a)(2)(ix)	<input type="checkbox"/>		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
S. Stephan Howze, Compliance Engineer	AREA CODE: 5 0 1 3   5 5 6 1 - 5 5 7 1 7

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)  NO

EXPECTED SUBMISSION DATE (15)

MONTH	DAY	YEAR

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

On January 8, 1990 an investigation of a failed surveillance test determined that local leak rate testing (LLRT) had not been performed on the inboard Containment Personnel Air Lock Door equalizing valves. The cause was procedural inadequacy, and the design of the equalizing valve contributed to the problem. The valve is a linkage operated, spring loaded disc which closes on an open ended pipe, and is sealed with O-rings. The inboard valve is assisted closed by Containment pressure, but would relieve pressure from inside the air lock. Therefore, the inboard equalizing valve was clamped in order to pressurize the air lock barrel during leak-rate testing. Corrective action includes revision of applicable procedures to test the inboard equalizing valve, and the evaluation of a modification to use a Class 2 ball valve.

This event had no effect on the health and safety of the public. The procedure was adequate for testing the outboard Containment Air Lock Door and equalizing valve. Gross failure of the inboard Containment Air Lock Door's equalizing valve O-ring would have been evident during the test. Additionally, Integrated Leak Rate Testing of the Containment provided assurance of Containment Integrity.



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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
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TEXT (If more space is required, use additional NRC Form 366A) (17)

DESCRIPTION OF OCCURRENCE

On January 8, 1990 the Plant was in Mode 1 (Power Operation) at 97 percent power with the Reactor Coolant System temperature at 582°F and pressure of 2,235 psig. During performance of an event evaluation, it was determined that Periodic Engineering Test (PET) 5-2, "Containment Local Leak Rate Testing (LLRT)", did not adequately test the Containment Personnel Air Locks Inboard equalizing valves, as required by Trojan Technical Specification (TTS) 3.6.1.2, "Containment Leakage", and TTS 3.6.1.3, "Containment Air Locks". The inadequate procedures, PET 5-2 measures overall air lock leakage at  $P_a$  (60 psig), and verifies overall air lock leakage is within its TTS 3.6.1.3 limit. PET 5-2 is performed at least once per 6 months, as required by TTS 4.6.1.3.b.

On December 26, 1989, performance of PET 5-2 was unsatisfactory due to excessive leakage at the outboard personnel air lock door equalizing valve. The failure was caused by slippage of the valve's stem nut. After corrective maintenance, the PET 5-2 retest of the air lock was satisfactory and was completed within the time frame allowed by TTS 3.6.1.3, "Containment Air Locks", and TTS 3.6.1.1, "Containment Integrity" Action Statements. A follow up investigation of the failure was initiated.

The air lock door equalizing valve is unique in construction, and part of an early air lock design. The air lock is manufactured by the W. J. Woolley Company. The equalizing valve is best characterized as a linkage-operated spring-loaded disc, which closes on an open pipe end, and is sealed with O-rings. During a Loss-of-Coolant Accident (LOCA), pressure would act on top of the disc forcing it down on the O-ring seal. When entering the air lock, the door handwheel is turned to undog the door, and causes the operating mechanism to first lift the equalizing valve disc, and equalizes pressure between the air lock barrel and the outside of the door. More recent air lock door designs utilize a Class 2 ball valve, as the equalizing valve.

The purpose of PET 5-2 includes determination of overall personnel airlock leakage. The overall leakage determination test method was taken from the technical manual. Per the Technical Manual, the valve disc is clamped closed prior to air lock barrel pressurization to prevent the disc from lifting from its seat against spring pressure, when the barrel is pressurized. The technical manual does not specify a separate test of the valve O-ring. PET 5-2 was adequate for testing the outboard personnel air lock doors and equalizing valves, which are not clamped for test performance. Additionally, Integrated Leak Rate Testing verified the overall operability of the Containment pressure boundaries.

There have been no previous events of a similar nature at Trojan concerning the Containment Personnel Air Locks or air lock equalizing valves.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

CAUSE OF OCCURRENCE

The primary cause of this event was an inadequate procedure. PET 5-2 did not satisfy all criteria for Personnel Air Lock local leak rate testing. The leak rate determination method did not adequately test the equalizing valve. A contributing factor was the vendor manual which specifies the installation of C-clamps on the equalizing valve for the barrel test, but does not specify the test required of the inboard equalizing valve. This event is reportable per Title 10 of the Code of Federal Regulations, Part 50.73(a)(2)(i)(b), as a failure to perform a Technical Specification Surveillance.

CORRECTIVE ACTIONS

The immediate corrective action was to declare the inboard Containment Personnel Air Lock equalizing valve inoperable. Therefore, when the outboard Containment Personnel Air Lock Door is opened, the one hour action statement of TTS 3.6.1.1, "Containment Integrity", is entered, since the integrity of the inboard valve has not been demonstrated.

The permanent corrective actions are as follows:

1. PET 5-2 will be revised to require proper leak testing of the inboard equalizing valve O-ring seal by May 15, 1990.
2. Maintenance Procedure (MP) 8-2, "Personnel Air Lock Periodic Maintenance", will be revised to include a visual inspection of the equalizing valve operating linkage by May 15, 1990.
3. A modification will be evaluated to replace Containment Personnel Air Lock equalizing valves with Class 2 ball valves by May 1, 1990.

SIGNIFICANCE OF OCCURRENCE

This event had no effect on the health and safety of the public. No overpressure transients occurred in Containment to challenge the integrity of the inboard Containment Air Lock Door equalizing valve. The surveillance test would have detected gross inboard equalizing valve O-ring failure. Additionally, Integrated Leakage Rate Testing ultimately assured primary Containment integrity.

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