

Omaha Public Power District
444 South 16th Street Mall
Omaha, Nebraska 68102-2247
402/636-2000

January 3, 1992
LIC-91-284L

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Station P1-137
Washington, DC 20555

Reference: Docket No. 50-285

Gentlemen:

Subject: License Event Report 91-029 for the Fort Calhoun Station

Please find attached Licensee Event Report 91-029 dated January 3, 1992. This report is being submitted pursuant to 10 CFR 50.73(a)(2)(v). If you should have any questions, please contact me.

Sincerely,

W. G. Gates

W. G. Gates
Division Manager
Nuclear Operations

WGG/lah

Attachment

c: R. D. Martin, NRC Regional Administrator
D. L. Wigginton, NRC Senior Project Manager
R. P. Mullikin, NRC Senior Resident Inspector
INPO Records Center

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LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-500), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)

Fort Calhoun Station Unit No. 1

DOCKET NUMBER (6)

0 5 0 0 0 2 8 5 1 OF 0 4

PAGE (8)

TITLE (4)

Personnel Air Lock Leak Rate Test Deficiency

EVENT DATE (5)			LEAK NUMBER (6)		REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)											
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	PREVIOUS NUMBER	MONTH	DAY	YEAR	FACILITY NAMES	DOCKET NUMBER(S)									
1	2	0	4	9	1	9	1	0	2	9	0	0	1	0	3	9	2	N	0 5 0 0 0 0 1
OPERATING MODE (9)		1		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 50. (Check one or more of the following) (11)															
POWER LEVEL (10)		1 0 0		20.402(b)		20.405(a)		50.73(a)(2)(v)		73.71(b)									
				20.405(a)(1)(i)		50.73(a)(2)(v)		50.73(a)(2)(v)		73.71(c)									
				20.405(a)(1)(ii)		50.73(a)(2)(v)		50.73(a)(2)(v)(A)		OTHER (Specify in Abstract below and in Text, NRC Form 896A)									
				20.405(a)(1)(iii)		50.73(a)(2)(v)		50.73(a)(2)(v)(B)											
				20.405(a)(1)(iv)		50.73(a)(2)(v)		50.73(a)(2)(v)(C)											
				20.405(a)(1)(v)		50.73(a)(2)(v)		50.73(a)(2)(v)											

LICENSEE CONTACT FOR THIS LER (12)

NAME

Craig E. Booth, Shift Technical Advisor

TELEPHONE NUMBER

AREA CODE

4 0 2 5 3 3 1 6 8 7 4

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)	X	12	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR

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

On December 2, 1991, while Fort Calhoun Station was operating at 100 percent power (Mode 1), a Special Services Engineer (SSE) was reviewing a procedure for containment leak rate testing, when it was realized that this procedure did not adequately test the inner Personnel Air Lock (PAL) equalizing valve as required under Technical Specification 3.5.(3)d. Specifically, this specification requires that "the entire PAL assembly be tested to 60 PSIG" on a six month basis. However, because the procedure did not adequately test the equalizing valve, the "entire assembly" was not tested. A procedure was written to test the equalizing valve and this test was successfully conducted on December 7, 1991. This report is being submitted pursuant to 10 CFR 50.73(a)(2)(v).

The safety significance of this event is minimal based on previous Integrated Leak Rate Tests which have proven containment integrity, and the fact that once properly tested, the equalizing valve was found to be operable.

The cause of this event was attributed to past inadequate procedure change reviews. A change was made to the testing procedure in 1974, which removed the equalizing valve from the test boundary.

Corrective actions included declaring the equalizing valve inoperable, generating a new procedure to test the equalizing valve, testing the valve, and reviewing all Type B Leak Rate Test Procedures along with the current configuration of Type B penetrations.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 60.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20545, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (3)	PAGE (5)
Fort Calhoun Station Unit No. 1		YEAR	
	0 5 0 0 0 2 8 5 9 1 - 0 2 9 - 0 0	0 2 9 - 0 0	0 2 OF 0 4

TEXT (If more space is required, use additional NRC Form 588A(s)(17))

The containment structure at Fort Calhoun Station (FCS) is a reinforced concrete pressure vessel. The concrete is partially pre-stressed by tendons that run through the vessel. A steel lining adjacent to the concrete provides a continuous vapor tight barrier. The structure contains numerous penetrations to provide an interface between internal and external systems. These penetrations fall into three major categories: piping, electrical and access penetrations. The containment structure and its penetrations are designed to safely withstand all external and internal loadings which can be expected during the life of the plant.

The containment penetrations (including air locks) are subject to Type B Leak Rate tests, as described in 10 CFR 50, Appendix J. This type of test is intended to detect local leaks and to measure leakage across pressure containing or leakage limiting boundaries. Type B tests are performed by local pneumatic pressurization of the penetration. The testing can be performed individually or in groups and is performed at a test pressure of 60 psig. The leak rate is determined based on the rate of makeup air flow required to maintain a test pressure of 60 psig. The testing is performed at refueling intervals or more frequently, but at a frequency not to exceed two years.

Specifically, the frequency of the Type B testing for the Personnel Air Lock (PAL) is every six months for the entire PAL assembly. Additionally, it is tested within two weeks of achieving conditions that require containment integrity. The seals on the PAL doors are tested on a more frequent schedule at 5 psig. The frequency of the seal leakage testing is based on plant requirements for containment integrity and whether the PAL door has been opened.

The FCS Containment Leak Rate Testing (CLRT) Program Engineer was reviewing all Type B and Type C procedures for changes which might be required for the upcoming refueling outage, as part of his programmatic responsibilities. A modification of the Local Leak Rate Test rigs prompted the Special Services Engineer's (SSE) thorough review of these procedures.

On December 2, 1991, while FCS was operating at 100 percent power (Mode 1), the SSE who has been assigned the duties of the CLRT Program Engineer was reviewing procedure IC-ST-AL-0001, "Containment Personnel Air Lock Type B Leak Rate Test". This test is the six-month, 60 psig leak test of the PAL assembly, as required by Technical Specification 3.5.(3)d. In this review, a potential problem in the leak testing of the inner PAL door equalizing valve was identified. In this test, the equalizing valve line is plugged from the inside of the PAL to prevent the valve from leaking, then the PAL assembly is pressurized to the 60 psig test pressure. The vendor manual states that the equalizing valve is to be clamped closed to prevent the internal side loading on the valve from causing leakage across the O-ring seal.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 60.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-830), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		

TEXT (If more space is required, use additional NRC Form 886A's)(17)

This potential problem was discussed with a vendor representative on December 4, 1991, during a site visit. The vendor representative agreed that a problem did exist due to the presence of the plug and that the equalizing valve was not being adequately tested. The SSE review and the vendor's comments were forwarded to the Lead System Engineer (SE) for Primary Systems. The Lead SE presented the findings to the Plant Review Committee (PRC) and a determination was made that due to the lack of adequate testing on the equalizing valve, containment integrity could not be assured with the outer PAL door open. As a result, the outer PAL door was danger tagged shut to ensure that containment integrity was maintained and a 4 hour notification was made to the NRC pursuant to 10 CFR 50.72(b)(2)(iii)(C). This report is being submitted pursuant to 10 CFR 50.73(a)(2)(v)(C).

On December 5, 1991, a temporary waiver of compliance from the provisions of Technical Specification 2.6.(1)a was requested from NRC Region IV. This waiver would allow opening of the outer PAL door (with the inner PAL door equalizing valve inoperable) so that testing of the equalizing valve could be conducted. On December 6, 1991, a 72-hour waiver was granted to allow this.

The valve was successfully tested on December 7, 1991, using a new Surveillance Test, IC-ST-AE-0006, "Containment Personnel Air Lock Reactor PAL Door Equalizing Valve Type B Leak Rate Test". This satisfies the requirements of Technical Specification 3.5.(3)d and will be performed on a six-month frequency. In this test, an expandable test plug is installed into the mouth of the equalizing valve penetration from inside the air lock while the valve is clamped shut with a loading equivalent to 120 psig. This represents a sealing load of 60 psig on the valve when a test pressure of 60 psig is applied to the equalizing line and internal side of the valve. A test pressure of 60 psig is applied between the test plug and the valve, and the leakage is measured using the makeup flow method.

In reviewing the history of this test, it has been identified that when the test was originally written, it correctly tested the PAL assembly, including the inner PAL door equalizing valve, as directed by the vendor manual. In July 1974, the test was changed to plug the equalizing line on the inner PAL door instead of using C-clamps to secure the valve closed. This change was implemented to eliminate the need for a person to remain in containment for an extended period of time during the test in order to install and remove the C-clamps. This was done in the interest of personnel safety. Plugging the line, however, resulted in the equalizing valve not being Type B Leak Rate tested as required.

The root cause of this event can be attributed to an inadequate procedure change review process. Contributing causes of this event are: (1) the lack of understanding or knowledge of the regulations regarding the design basis involved by all individuals who reviewed and/or approved the procedure change, as well as, by those individuals who have performed the biennial reviews for this procedure; and, (2) the fact that in 1974, no procedural requirement existed for performing documented safety evaluations for procedure changes.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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TEXT (If more space is required, use additional NRC Form 306A's)(17)

The following corrective actions have been taken:

1. On December 4, 1991, the inner PAL door equalizing valve was declared inoperable due to the lack of proper leak rate testing. Administrative controls were established to ensure that containment integrity was maintained by danger tagging the outer PAL door closed.
2. A procedure (IC-ST-AE-0006) was developed to leak test the inner PAL door equalizing valve. This test was approved and incorporated into station procedures on December 6, 1991. On December 7, 1991, this test was performed with acceptable test results.
3. The safety evaluation and review process for procedure changes has been substantially upgraded since 1974, and is documented in Nuclear Operations Division Quality Procedure NOD-QP-3, "10 CFR 50.59 Safety Evaluations".
4. The biennial review process has been upgraded as part of an overall enhancement and is documented in Standing Order SO-G-36 "Biennial Review".

The following corrective action will be taken:

1. All Type B Leak Rate Test procedures will be reviewed along with the current configuration of all Type B penetrations to ensure that the penetrations are being tested in accordance with 10 CFR 50, Appendix J criteria. This will be completed by June 15, 1992.

This event had no effect on the health and safety of the public. Past plant Integrated Leak Rate Tests have proven containment integrity, and when tested the inner PAL door equalizing valve was proven to be operable.

In the past three years, the following LERs have been submitted concerning events involving containment integrity: LER 91-027, 91-003, 90-014 and 88-011.