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

January 15, 1992  
LIC-92-044L

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

Reference: Docket No. 50-285

Gentlemen:

Subject: Licensee Event Report 91-031 for the Fort Calhoun Station

Please find attached Licensee Event Report 91-031 dated January 15, 1992. This report is being submitted pursuant to 10 CFR 50.73(a)(2)(ii). If you should have any questions, please contact me.

Sincerely,

*W. G. Gates*

W. G. Gates *for*  
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



LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 30. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH, 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)	DOCKET NUMBER (2)	LER NUMBER (3)			PAGE (4)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
Fort Calhoun Station Unit No. 1	0500028591	—	031	—00	02	OF 04

TEXT (If more space is required, use additional NRC Form 308A's)(17)

At Fort Calhoun Station the Personnel Air Lock (PAL) consists of a cylindrical steel barrel with a bulkhead welded to each end. Integral to each bulkhead is a 3 feet 6 inches by 6 feet 3 inches door with a dual resilient seal. This assembly was designed to withstand all postulated containment conditions with either or both doors secured. Each door is designed to open inward, toward containment, so that in the event of containment overpressurization, the door will tend to compress the seals. The doors are mechanically interlocked to ensure that only one door can be opened at a time and an alarm is annunciated to the Control Room if either PAL door is not completely secured.

The seals on the PAL doors are tested in accordance with 10 CFR 50 Appendix J, Type B leak rate testing at 5 psig after each opening or daily, whichever is less frequent. The entire PAL assembly is tested at six month intervals, and within two weeks of conditions that require containment integrity, at the maximum design pressure of 60 psig. The testing of the PAL door seals is accomplished using a permanent test panel (AI-213) that is installed in the Auxiliary Building just outside the PAL. This panel was installed in 1974, as an approved modification in accordance with 10 CFR 50.59. This installation was performed to facilitate the testing of the PAL and the PAL door seals.

The design utilized the test taps located on each bulkhead to test the seals, and existing gage taps on the outer bulkhead to run the sensing line from the inner door to the test panel. This design was intended to allow testing with both PAL doors secured. Additionally, the emergency air supply, an originally capped line, was modified to include a pipe stub and valve for pressurizing the PAL assembly to the 60 psig test pressure.

The Containment System Engineer (SE) was reviewing potential modifications needed on the PAL. The SE questioned if the permanently installed valves and tubing were seismically mounted. A records search did not retrieve a seismic analysis, the testing procedures to show that the leakage was measured for the test valves that formed the containment isolation boundary, or documentation to attest to the material quality of the valves and tubing.

On December 16, 1991, while operating at 100 percent power (Mode 1), it was determined that the connections to the PAL for leak rate testing were potentially outside the original design requirements. This was due to the lack of documentation attesting to the qualification of the following test connections: a 3/4 inch pipe stub and manual isolation valve installed on the three-inch emergency air supply/test line pipe cap; copper tubing running from the inner door seal gasket annulus test tap to one of the pressure gage taps on the outer door inner bulkhead surface, and the stainless steel tubing running from the same gage tap on the outer bulkhead surface to a manual isolation valve; and, additional copper tubing running from the outer door seal gasket annulus test tap to a manual isolation valve. Failure of these components would have rendered the two outer door seals and one of the two inner door seals inoperable.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQ' EST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), 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)	DOCKET NUMBER (2)	LER NUMBER (3)			PAGE (4)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
Fort Calhoun Station Unit No. 1	0500028591	03	1	00	03	OF 04

TEXT (If more space is required, use additional NRC Form 388A's)(17)

At 1305 hours, it was confirmed that the PAL was outside its design basis. On December 16, 1991, at 1400 hours, notification was subsequently made to the NRC pursuant to 10 CFR 50.72(b)(1)(ii)(B). This report is being submitted pursuant to 10 CFR 50.72(a)(2)(ii). Administrative control was established by danger tagging the outer PAL door to further restrict access.

At 1620 hours, an operability demonstration was completed in accordance with NOD-QP-31, "Operability and Reporting of Personnel Access Lock (PAL) on". The PAL was deemed to have been operable with the unqualified connections in place based on the results of two previously conducted surveillance tests. Both tests showed all four seals were capable of performing their design basis function. The seal is a passive device not subject to single failure criteria. The first surveillance test, OP-ST-AE-0001, "Personnel Access Lock (PAL) O-ring Seal", directed the testing of the PAL door seals at 5 psig, and the second, IC-ST-AE-0001, "Containment Personnel Air Lock Type B Leak Rate Test", directs the 60 psig testing of the entire PAL assembly. These recent tests indicated that containment integrity was being maintained by the PAL. Based on these recent seal leakage tests and by maintaining the inner door closed and sealed, the health and safety of the public was not at risk at any time due to the unqualified connections.

The root cause of this event is attributed to the lack of procedural control of the plant configuration change process when these connections were installed in 1974. The contributing cause was lack of understanding of the design basis of the PAL by those individuals involved with this design change in 1974.

In addressing the root cause of this event, the following actions were previously completed under other plant enhancement programs:

1. Training in the performance of 10 CFR 50.59 safety evaluations has been upgraded.
2. System Design Basis Documents were developed to facilitate review and assessment.
3. Procedural guidance on the performance of plant modifications/configuration changes has been improved (i.e., Standing Order G-21, PED-QP-2, and PED-GEI-3).

As a result of this event, the following corrective actions regarding the PAL, have been or will be completed:

1. On December 16, 1991, at 1420 hours, administrative control was established to restrict access by danger tagging the outer PAL door closed, thus ensuring that containment integrity was maintained.
2. On December 19, 1991, the unqualified components were removed from the PAL and the penetrations were capped. This restored the PAL to the original design configuration.



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 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 (2)  0   5   0   0   0   2   8   5   9   1   —   0   3   1   —   0   0	LER NUMBER (3)			PAGE (5)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			

TEXT (If more space is required, use additional NRC Form 308A's)(17)

3. A modification to install new tubing and valves that meet the appropriate design criteria will be completed under NCR 91-105 by May 30, 1992.
4. The Updated Safety Analysis Report (USAR) and Technical Specifications will be updated to reflect the new valves associated with this modification (NCR 91-105). The USAR updates will be submitted with the annual 1992 update. The Technical Specification proposed changes will be submitted by June 5, 1992.

There have been no other LERs submitted concerning these PAL door connections being outside the design basis.