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September 24, 2004  
LIC-04-0099

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

Reference: Docket No. 50-285

**Subject: Licensee Event Report 2004-001 Revision 0 for the Fort Calhoun Station**

Please find attached Licensee Event Report 2004-001, Revision 0, dated September 24, 2004. This report is being submitted pursuant to 10 CFR 50.73(a)(2)(i)(B). If you should have any questions, please contact me.

Sincerely,

D. J. Bannister  
Manager - Fort Calhoun Station

DJB/EPM/epm

Attachment

c: INPO Records Center

**LICENSEE EVENT REPORT (LER)**

(See reverse for required number of digits/characters for each block)

Estimated burden per response to comply with this mandatory collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

<b>1. FACILITY NAME</b> Fort Calhoun Station	<b>2. DOCKET NUMBER</b> 05000285	<b>3. PAGE</b> 1 OF 4
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**4. TITLE**  
Failure To Perform A Leakage Test Due To Lack Of Understanding of Penetration Design

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
07	29	2004	2004	- 001 -	00	09	24	2004	FACILITY NAME	DOCKET NUMBER 05000

**9. OPERATING MODE**  
1

**10. POWER LEVEL**  
100

**11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§:** (Check all that apply)

<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)
<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)
<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)
<input checked="" type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)
<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)
<input type="checkbox"/> 20.2203(a)(2)(iii)	<input checked="" type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)
<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input checked="" type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)
<input checked="" type="checkbox"/> 20.2203(a)(2)(v)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> OTHER
<input type="checkbox"/> 20.2203(a)(2)(vi)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A

**12. LICENSEE CONTACT FOR THIS LER**

FACILITY NAME Glen Miller	TELEPHONE NUMBER (Include Area Code) (402) 533-7359
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**13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT**

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

<b>14. SUPPLEMENTAL REPORT EXPECTED</b> <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	<b>15. EXPECTED SUBMISSION DATE</b> MONTH:      DAY:      YEAR:
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

While investigating the requirements for the Type B Local Leak Rate Test (LLRT) for the fuel transfer tube, it was discovered that the sleeve for the transfer tube, M-100, had not been tested as required by 10 CFR 50 Appendix J and Technical Specification 3.5 (3) (iv). Records cannot be found to determine if the test has been performed as required since initial construction.

The lack of understanding of the design features of penetration M-100, coupled with the reasonable conclusion that M-100 is similar to the equipment hatch, led to a comfort level with the testing program and, consequently, lack of a proper test had never been questioned.

The M-100 sleeve was subsequently tested satisfactorily. Similar penetrations were reviewed to ensure that this problem had not occurred at any other plant locations. No similar situations occurred.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)	
Fort Calhoun Nuclear Station	05000285	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2	OF
		2004	- 001	- 00		

**NARRATIVE** (If more space is required, use additional copies of NRC Form 366A) (17)

**BACKGROUND:**

Fort Calhoun Station (FCS) is a two loop Combustion Engineering design Pressurized Water Reactor (PWR). The reactor coolant system and associated equipment are located inside a cylindrical containment building. The auxiliary building (which contains the spent fuel pool) is adjacent to the containment building. Adjacent to the spent fuel pool is the new fuel storage area. A penetration between the containment and auxiliary buildings, M-100, referred to as the fuel transfer tube, runs between the buildings allowing new and spent fuel to be transferred to the reactor vessel or to the spent fuel pool.

**CHRONOLOGY:**

- November 1972: The pre-operational Type "A" test was performed. In the documentation for that test, it was noted that the test for the Fuel Transfer Tube concluded that the leak rate was 82.0 cc/min at 0 psig and 70° F. There is no mention of how the test was conducted, but judging from a leak rate of only 82.0 cc/min, it is concluded that, the test must have been a Type "B" test conducted on M-100.
- April 1973: Penetrations were installed and tested.
- April 13, 1973: A hand written status report stated that "The Equipment Hatch and Flange on the Fuel Transfer Tube (FH-11)(M-100) will require testing after they are installed."
- April 21, 1973: From a hand written list of penetrations, it appears that a test of the Transfer Tube was conducted. However, it is identified as FH-1 on the list. There is no mention of how the test was conducted.
- May 28, 1982: Franklin Research Center, under contract to the NRC, issued a report on the adequacy of the OPPD testing program in accordance with Appendix J. (Appendix J did not exist when the plant was designed). The report does not bring the method of testing M-100 into question.
- April 30, 1984: A procedure change was made to ST-CONT-2, F.4 to identify the correct test connection for the fuel transfer tube blank flange. This is the first documented instance of identifying that the test was performed on M-100.

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NARRATIVE (If more space is required, use additional copies of NRC Form 366A) (17)

EVENT DESCRIPTION:

While investigating the requirements for the Type B Local Leak Rate Test (LLRT) for the fuel transfer tube, it was discovered that the M-100 sleeve for the transfer tube has not been tested as required by 10 CFR 50 appendix J and Technical Specification 3.5 (3) (iv). Normally Type B sleeve tests are completed on a refueling frequency. IC-ST-AE-0003 is the Type B LLRT for the transfer tube flange test which is completed each refueling as required. However, there is no test for the M-100 sleeve. A condition report was generated to document a missed surveillance test for an LLRT as required by Technical Specifications. A risk evaluation was completed as required for technical specifications for a missed surveillance test. Note that the Type "A" test does test and verify the sleeve for M-100 is intact, and that the total containment leakage is acceptable and meets technical specifications testing requirements.

On July 29, 2004, a review of the reportability of this event was completed. This is being reported pursuant to 10 CFR 50.73(a)(2)(i)(B).

CONCLUSION:

An analysis was conducted to determine why, throughout the history of the station, the sleeve for M-100 had not been tested under the LLRT process. Although no documentation could be found to positively determine the root cause of this event, it appears that the method of testing the transfer tube (M-100) has been consistent since it was installed in 1973. The process used has been documented in different ways over the years, but the method used appears to be the same since the original test on April 21, 1973. There are only two other mechanical penetrations that use a seal similar to the fuel transfer tube; the Equipment Hatch and the PAL door assembly. It appears, from the existing documentation, that these three penetrations were all tested in the same manner in 1973: by pressurizing between the seals, and that practice has continued since 1973.

A review of the original FSAR figure reveals that the test connection for the sleeve is clearly visible. There is no evidence that could be found to determine why the lack of a sleeve test for this penetration had ever been evaluated.

Due to the age of this issue (about 30 years) and unavailability of personnel from the construction period, a conventional analysis was not possible. After reviewing the available documentation and interviewing personnel currently familiar with leak rate testing, it was determined that the lack of knowledge or understanding of the design features of penetration M-100, coupled with the conclusion that M-100 is similar to the equipment hatch, led to a comfort level with the testing program and, consequently, lack of a proper test.

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**SAFETY SIGNIFICANCE**

On September 2, 2004, following discovery of this oversight, a Type B test was performed on the M-100 seal. The test was completed satisfactorily. The leak rate was very low, nearly the same as the pre-installation test result. The integrity of the penetration has not changed over the life of the plant. Therefore, this event has little if any impact on the health and safety of the public.

**CORRECTIVE ACTIONS:**

The Type B M-100 sleeve test was completed on September 2, 2004, successfully. A review was conducted to determine if other similar conditions existed. There were no similar conditions. Other corrective actions are documented in the corrective actions system.

**SAFETY SYSTEM FUNCTIONAL FAILURE:**

This event did not result in a safety system functional failure in accordance with NEI-99-02.

**PREVIOUS SIMILAR EVENTS:**

LER 2003-001, documented a similar event were an ASME inservice test was not performed as required.