



Omaha Public Power District  
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Omaha, Nebraska 68102-2247

November 24, 1999  
LIC-99-0110

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 1999-005 Revision 0 for the Fort Calhoun Station

Please find attached Licensee Event Report 1999-005, Revision 0, dated November 24, 1999. 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,

R. L. Phelps  
Division Manager  
Nuclear Engineering

EPM/epm

Attachment

c: E. W. Merschoff, NRC Regional Administrator, Region IV  
L. R. Wharton, NRC Project Manager  
W. C. Walker, NRC Senior Resident Inspector  
INPO Records Center  
Winston and Strawn

IE22

**LICENSEE EVENT REPORT (LER)**

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

Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Records Management Branch (T-8 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0104), Office of Management and Budget, Washington, DC 20503. If 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.

FACILITY NAME (1)

Fort Calhoun Nuclear Station Unit Number 1

DOCKET NUMBER (2)

05000285

PAGE (3)

1 OF 3

TITLE (4)

**Failure to Satisfy Surveillance Requirement for a Containment Penetration**

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 NAME	DOCKET NUMBER																													
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<p><b>OPERATING MODE (9)</b> 5</p> <p><b>POWER LEVEL (10)</b> 0</p> <p><b>THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)</b></p> <table border="1"> <tr> <td>20.2201(b)</td> <td>20.2203(a)(2)(v)</td> <td>X</td> <td>50.73(a)(2)(i)</td> <td>50.73(a)(2)(viii)</td> </tr> <tr> <td>20.2203(a)(1)</td> <td>20.2203(a)(3)(i)</td> <td></td> <td>50.73(a)(2)(ii)</td> <td>50.73(a)(2)(x)</td> </tr> <tr> <td>20.2203(a)(2)(i)</td> <td>20.2203(a)(3)(ii)</td> <td></td> <td>50.73(a)(2)(iii)</td> <td>73.71</td> </tr> <tr> <td>20.2203(a)(2)(ii)</td> <td>20.2203(a)(4)</td> <td></td> <td>50.73(a)(2)(iv)</td> <td>OTHER</td> </tr> <tr> <td>20.2203(a)(2)(iii)</td> <td>50.36(c)(1)</td> <td></td> <td>50.73(a)(2)(v)</td> <td rowspan="2">Specify in Abstract below or in NRC Form 366A</td> </tr> <tr> <td>20.2203(a)(2)(iv)</td> <td>50.36(c)(2)</td> <td></td> <td>50.73(a)(2)(vii)</td> </tr> </table>											20.2201(b)	20.2203(a)(2)(v)	X	50.73(a)(2)(i)	50.73(a)(2)(viii)	20.2203(a)(1)	20.2203(a)(3)(i)		50.73(a)(2)(ii)	50.73(a)(2)(x)	20.2203(a)(2)(i)	20.2203(a)(3)(ii)		50.73(a)(2)(iii)	73.71	20.2203(a)(2)(ii)	20.2203(a)(4)		50.73(a)(2)(iv)	OTHER	20.2203(a)(2)(iii)	50.36(c)(1)		50.73(a)(2)(v)	Specify in Abstract below or in NRC Form 366A	20.2203(a)(2)(iv)	50.36(c)(2)		50.73(a)(2)(vii)
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**LICENSEE CONTACT FOR THIS LER (12)**

NAME	TELEPHONE NUMBER (Include Area Code)
Glenn L. Miller Component Test Engineer	402-533-7359

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

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

**SUPPLEMENTAL REPORT EXPECTED (14)**

YES (If yes, complete EXPECTED SUBMISSION DATE).	X	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR

**ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)**

On October 29, 1999, with the plant in Mode 5 for refueling, it was discovered that a pipe nipple, used to pressurize the Waste Disposal Gas (WDG) header piping associated with containment penetration M-14 for containment isolation valves leak rate testing, did not penetrate the system piping. A review of past records indicates that containment isolation valves leak rate (Type C) tests performed during the 1993, 1995, and 1996 refueling outages using this pipe nipple were invalid as a result of this problem. The containment isolation valves associated with penetration M-14 were not checked for leakage as required by technical specifications since no pressure was applied to them.

The cause of this event was determined to be inadequate corrective actions, in that the evaluation in 1993 was not adequate to determine the condition of the pipe nipples associated with penetrations M-14 or M-80. The evaluation in 1996 resulted in the leakage data for penetration M-14 being incorrectly interpreted.

Physical checks of all other penetrations addressed by corrective actions in response to NRC Information Notice (IN) 92-20, "Inadequate Local Leak Rate Testing," have been conducted to determine that all in-use fill connections are drilled through the pipe and physically connect with the components being tested.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Fort Calhoun Nuclear Station Unit Number 1	05000285	1999	-- 005	-- 00	2 of 3

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

**BACKGROUND**

The containment is the final fission product barrier to the release of radioactivity to the environment in the event of a catastrophic failure of the reactor coolant system. The containment building provides biological shielding for plant and yard areas during normal, as well as, accident conditions and provides the housing for the Nuclear Steam Supply System and some engineered safeguards equipment.

The containment, including its associated access openings and penetrations, is capable of withstanding the internal pressures resulting from the plant's Design Basis Accidents (DBAs).

Fort Calhoun Station (FCS) Technical Specification (TS) 3.5 requires leak rate tests be conducted to assure that leakage from the containment and associated systems is maintained within allowable leakage rate limits. TS require periodic surveillances be performed to assure proper maintenance and repair of the containment structure and penetrations during the plant's operating life.

TS 3.5 requires that the following types of containment leak rate testing be performed:

1. Containment Integrated Leak Rate Tests (Type A) - Type A tests measure the reactor containment overall integrated leakage rate.
2. Containment Penetration Leak Rate Tests (Type B) - Type B tests detect local leaks and measure leakage across each pressure-containing or leakage-limiting boundary for the containment penetrations.
3. Containment Isolation Valves Leak Rate Tests (Type C) - Type C tests measure containment isolation valve leakage rates.

The radioactive Waste Disposal Gas (WDG) header line exits the containment through penetration M-14 and requires a Type C leak rate test.

**EVENT DESCRIPTION**

On October 29, 1999, a technician performing surveillance test IC-ST-AE-3114, "Type C Local Leakage Rate Test of Penetration M-14," noted that the test rig response was not as expected. The test gas flow did not start when the test rig was properly lined up.

Subsequent physical examination found the pipe nipple did not penetrate the WDG system piping. A review of past records indicated local leak rate testing conducted on penetration M-14 (EIS: PEN) during the 1993, 1995, and 1996 refueling outages was invalid, as these tests used the blocked pipe nipple as a pressurization path. Therefore, the containment isolation valves associated with penetration M-14 were not checked for leakage within the required surveillance interval required by FCS TS 3.5 and the FCS containment leak rate testing program. The pipe nipple that was intended to be used to pressurize the WDG system piping associated with penetration M-14 was subsequently modified (drilled out) to allow the Type C leak rate test to be performed. The test was subsequently re-performed satisfactorily. This report is being submitted pursuant to 10 CFR 50.73(a)(2)(i)(B).

**SAFETY SIGNIFICANCE**

Testing conducted in 1992, prior to changing the test methodology, and in 1999, after the pressurization path was opened, showed the containment isolation valves associated with penetration M-14 allowed very low leakage at the design basis accident pressure of 60 psig. There is significant available margin in the analysis limits compared to the measured integrated leak rate. The leakage is insignificant compared to maximum allowable containment leakage. Therefore, it has been concluded that this event had minimal effect on plant/public safety.

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Fort Calhoun Nuclear Station Unit Number 1	05000285	1999	-- 005	-- 00	3 OF 3

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

**CONCLUSION**

The root cause of this event was determined to be inadequate corrective actions, in that the evaluation in 1993 was not adequate to determine the condition of the pipe nipples associated with penetrations M-14 or M-80. The evaluation in 1996 resulted in the leakage data for penetration M-14 being incorrectly interpreted.

The test method for a number of Type C piping system penetrations, including penetrations M-8, M-14, M-20, and M-80, was modified following test methodology changes OPPD made in response to NRC Information Notice (IN) 92-20, "Inadequate Local Leak Rate Testing." In 1993 these new procedures were first used. During the testing in 1993 it was discovered that the piping nipples for two penetrations, M-8 and M-20, had not been drilled into the associated system piping during initial construction. A corrective action document, Incident Report (IR) 930278, records the condition of penetrations M-8 and M-20 and the corrective actions taken as a result of the problems noted. The review of similar penetrations in 1993 was not adequate to discover the later problems. LER 1996-013 reports an identical problem discovered in 1996 with penetration M-80 and the evaluations and corrective actions taken as a result of the problem. Evaluation of the data taken for penetration M-14 in 1996 was inadequate to discover the problem at that time.

**CORRECTIVE ACTIONS**

A physical check of all similarly configured penetrations was conducted during the 1999 refueling outage to verify that no other blocked or undrilled pipe nipples are being used for Type C local leak rate testing. This review verified that other similarly configured Type C penetrations are being tested properly.

**SAFETY SYSTEM FUNCTIONAL FAILURE**

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

**PREVIOUS SIMILAR EVENTS**

The event noted in 1993 for penetrations M-8 and M-20 was corrected as the tests were being run. LER 1996-013 reported an identical problem in penetration M-80. The additional problem identified in 1996 with penetration M-80 resulted in the evaluation of data for other penetrations with similar configuration and changes to administrative requirements for altering leakage rate test fill points.