

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

February 20, 1992
LIC-92-051L

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 92-001 for the Fort Calhoun Station

Please find attached Licensee Event Report 92-001 dated February 20, 1992. 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,

W. G. Gates

W. G. Gates
Division Manager
Nuclear Operations

WGG/dle

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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Employment with Equal Opportunity
Male/Female

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LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.6 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-535), 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)
Fort Calhoun Station Unit No. 1DOCKET NUMBER (8)
0 5 0 0 0 2 8 5
PAGE 08
1 OF 0 3TITLE (4)
Unmonitored Release on Loss of 13.8 kV System

EVENT DATE (6)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)		
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME(S)	DOCKET NUMBER(S)	
0 1	2 1	9 2	9 2	0 0 1	0 0	0 2	2 0	9 2	N	0 5 0 0 0	

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 50.73(a)(2)(i)(B). Check one or more of the following: (11)											
POWER LEVEL (10) 0 8 2	20.402(b)	20.405(a)	50.73(a)(2)(iv)	75.71(b)									
	20.405(a)(1)(i)	50.56(a)(1)	50.73(a)(2)(v)	75.71(c)									
	20.405(a)(1)(ii)	50.36(a)(2)	50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 308A)									
	20.426(a)(1)(iii)	X 50.73(a)(2)(i)	50.73(a)(2)(vii)(A)										
	20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(vii)(B)										
20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(viii)											

LICENSEE CONTACT FOR THIS LER (12)

NAME
Keith A. Voss, Shift Technical AdvisorTELEPHONE NUMBER
AREA CODE
4 0 2 5 3 3 1 - 1 6 9 3 1 1

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 21, 1992, at 1258 hours, Fort Calhoun Station Unit No. 1 was operating at 82 percent power, coasting down in preparation for a refueling outage, when Control Room personnel received alarms that indicated a loss of the 13.8 kV electrical system. Immediate action was taken to determine the status of the Laboratory and Radioactive Waste Processing Building (LRWPB) Exhaust Stack gas, iodine, and particulate radiation monitors (RM-041/042/043) and the associated sample pump. During the five minutes that the sample pump was deenergized due to the loss of power, the exhaust fans were still in operation resulting in an unmonitored release. This is in violation of Technical Specification 2.9 and is being reported pursuant to the requirements of 10 CFR 50.73(a)(2)(i)(B).

The cause of this event is the inadequate design of the RM-041/042/043 sample pump motor control and supervisory circuitry for a loss of power.

Since there were no radioactive releases from the LRWPB stack during the time that the sample pump was deenergized, this event has minimal nuclear safety significance. However, normal ventilation releases were restarted when the 13.8 kV electrical system was restored. The cause of this momentary loss of the 13.8 kV electrical system is undetermined.

Corrective actions included immediately restarting the sample pump. A temporary modification was also installed to change the sample pump start switch to allow the sample pump to restart automatically upon restoration of power after a loss of power. The long term corrective actions include evaluating the current design configuration of the exhaust fan control circuits and an Engineering Change Notice 91-524 to provide Control Room indication if the sample pump experiences a loss of power or a loss of flow.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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)	DOCKET NUMBER (2)	LER NUMBER (3)			PAGE (4)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
Fort Calhoun Station Unit No. 1	0150000285	92	001	00	02	OF 03

TEXT (If more space is required, use additional NRC Form 300A(s) (17))

The Chemistry and Radiation Protection (CARP) Building and the Radioactive Waste Building (RWB) are two new structures built as part of Fort Calhoun Station (FCS) improvements. Their ventilation systems use a common exhaust stack that is independently operated from the rest of the plant and is equipped with its own radiation monitors designated as the Laboratory and Radioactive Waste Processing Building (LRWPB) Exhaust Stack gas, iodine and particulate monitors. The CARP and RWB are powered from an offsite 13.8 kV electrical system.

Technical Specification 2.9.1(2)h states, in part, that during releases from the Laboratory and Radioactive Waste Processing Building (LRWPB) Exhaust Stack the gas, iodine, and particulate monitors shall be monitoring the LRWPB Exhaust Stack. The specification allows the particulate and the iodine monitors to be inoperable provided that samples are continuously collected. The radiation monitors that accomplish this are RM-041, RM-042, and RM-043 (Particulate, Iodine, and Noble Gas, respectively.)

RM-041/042/043 monitor a continuous sample stream from the LRWPB exhaust stack. The sample is drawn from the LRWPB exhaust duct through the sample pipe, analyzed at the detector, and returned to the exhaust duct. The sample is representative of the flow going up the stack and is drawn by a sample pump. The sample pump control circuitry is designed to deenergize and remain deenergized if control power is lost and requires operator action to restart.

The control circuits for the ventilation units in the LRWPB are designed to shutdown with the loss of power and restart automatically when the power returns. There currently is not an interlock in place to ensure that the sample pump is running prior to the start/restart of the building's exhaust fans.

On January 21, 1992 at 1258 hours, Fort Calhoun Station was operating at 82 percent power, coasting down in preparation for a refueling outage, when Control Room personnel received alarms that indicated a loss of the 13.8 kV electrical system. Initially it was thought that the 13.8 kV feed was cut during work which was in progress in the switchyard. However, post-event review indicated that there were no problems in the switchyard and that the 13.8 kV electrical system experienced only a momentary loss. The cause of this momentary loss of the 13.8 kV electrical system is undetermined.

The Control Room also notified the auxiliary building operator to immediately start the sample pump for RM-041/042/043. The pump was restarted within five minutes of this loss of power. The exhaust fans restarted immediately upon restoration of power, but the sample pump was not running. Operation of the exhaust fans while the sample pump is not running was determined to be an unmonitored release in violation of Technical Specification 2.9.

Technical Specification 2.9.1(2)h(i) allows the particulate and iodine monitors to be inoperable provided that samples are continuously collected. These samples are required to be representative of the average quantities and concentrations of radioactive materials in particulate form released in the gaseous effluents, and the sample should be collected in proportion to the design flow rate of the effluent stream. Without the sample pump drawing the proper sample flow through the radiation monitors, a representative sample was not analyzed and subsequently the Technical Specification requirement was not met. Therefore, this report is being submitted pursuant to the requirements of 10 CFR 50.73(a)(2)(i)(B).

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 0.0 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)	DOCKET NUMBER (2)	LER NUMBER (3)			PAGE (5)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
Fort Calhoun Station Unit No. 1	0 5 0 0 0 2 8 5	9 2	— 0 0 1	— 0 0	0 3	OF 0 3

TEXT (If more space is required, use additional NRC Form 895A's)(17)

The root cause of this event was the inadequate design of the RM-041/042/043 sample pump motor control and supervisory circuitry. There are no control circuit interlocks or permissives between the RM-041/042/043 sample pump (which requires operator action to restart after power returns) and the LRWPB exhaust fans (which automatically restart when power returns).

There were no inappropriate personnel actions for this event. The operators, both licensed and non-licensed, were aware of the required actions that had to be performed for this type of event. The auxiliary building operator had the sample pump started within five minutes of the 13.8 kV electrical system being restored. The control room operators immediately notified the equipment operators and personnel working in the switchyard to start looking for equipment that was de-energized or power cables that had problems.

This event did not involve a reactor trip. All equipment (the ventilation units, radiation monitors, and sample pump) functioned as designed.

This event has minimal nuclear safety significance. There was no chemistry sampling being performed while the sample pump was off and there were no radioactive releases in progress through the LRWPB stack during this time. The only release that occurred during this event were normal ventilation releases that restarted when the 13.8 kV electrical system was restored. The radiation monitors were also available, but did not have adequate sample flow. Therefore, the monitors were not able to get a representative sample of the release until the sample pump was restarted.

The short term corrective actions included: 1) immediately restarting the sample pump and, 2) changing out the switch on the sample pump so that the pump will automatically restart when power is returned to the pump. This switch change-out was incorporated by installing Temporary Modification 92-04 on January 25, 1992 (MWO 920291).

The long term corrective actions for this event are as follows:

1. Engineering Change Notice (ECN) 91-524 was initiated on December 17, 1991. This ECN will provide the Control Room with an annunciator on the Radiation Monitor panel, in the event of a flow fault or loss of power on the RM-041/042/043 sample pump. This change will be installed under MWO 920496. The expected installation date is March 20, 1992.
2. EAR 92-002 was initiated to evaluate the present design configurations of the RM-041/042/043 sample pump control circuit and the exhaust fans that discharge through the LRWPB stack. This evaluation will be completed by December 31, 1992.

LER 91-028 was submitted concerning an unmonitored release through the LRWPB stack.