



**OPPD**

Omaha Public Power District

444 South 16th Street Mall  
Omaha NE 68102-2247

November 12, 1996  
LIC-96-0156

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

Reference: 1. Docket No. 50-285

Gentlemen:

Subject: Licensee Event Report 96-008 Revision 0 for the Fort Calhoun  
Station

Please find attached Licensee Event Report 96-008 Revision 0 dated  
November 11, 1996. This report is being submitted pursuant to  
10 CFR 50.73(a)(2)(iv). If you should have any questions, please contact me.

Sincerely,

T. L. Patterson  
Division Manager  
Nuclear Operations

TLP/epm

Attachment

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

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PDR ADOCK 05000285  
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**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: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO THE INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 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.

FACILITY NAME (1) Fort Calhoun Station Unit No. 1	DOCKET NUMBER (2) 05000285	PAGE (3) 1 OF 4
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TITLE (4)  
Ventilation Isolation Actuation Signal Due to High Containment Activity

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
10	11	96	96	-- 008	-- 00	11	12	96		05000
									FACILITY NAME	DOCKET NUMBER
										05000

OPERATING MODE (9) 5	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§ (Check one or more) (11)	20.2201(b)	20.2203(a)(2)(v)	50.73(a)(2)(i)	50.73(a)(2)(viii)
POWER LEVEL (10) 0		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)	X 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)	

LICENSEE CONTACT FOR THIS LER (12)

NAME Scott A. Lindquist, Shift Technical Advisor	TELEPHONE NUMBER (Include Area Code) (402) 533-6829
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)				EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	X	NO					

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

At 2251 on October 11, 1996, with the plant in Mode 5 for refueling, a Ventilation Isolation Actuation Signal (VIAS) occurred after steam generator primary side manways were removed. At the time of the VIAS the containment was being purged. VIAS actuated and the containment purge was isolated as designed to limit the release of radioactivity from the containment to less than the limits specified in 10 CFR 20 and Technical Specifications.

This event was caused by procedural controls that were inadequate to prevent a VIAS during an activity that breached the primary system boundary. The VIAS actuation occurred due to an increase in containment airborne activity. The increased containment activity was caused by the opening of the cold leg manways while a High Efficiency Particulate Air (HEPA) filter ventilator was in service on the hot leg manways, prompting a rapid dispersal of xenon into the atmosphere. Higher than normal fission product activity caused by higher than normal fuel element failures contributed to the event.

Plant procedures will be reviewed and revised as necessary to ensure appropriate controls are in place to mitigate the possibility of a VIAS during maintenance or operational evolutions in the containment.

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

### BACKGROUND

The Ventilation Isolation Actuation Signal (VIAS) is an Engineered Safety Feature (ESF) at the Fort Calhoun Station (FCS) which isolates containment ventilation to prevent a higher than expected release of radioactivity from the containment. A VIAS may be actuated by either a Containment Radiation High Signal (CRHS), or a Containment Spray Actuation Signal (CSAS), or a Safety Injection Actuation Signal (SIAS). A VIAS actuation provides signals which result in the following:

- Closes containment purge valves, secures containment purge fans, and secures the containment mini-purge.
- Shifts the containment cooling and filtering units to the charcoal filtered mode.
- Isolates containment air sampling and containment pressure relief lines.
- Opens ventilation dampers for the safety injection pump rooms and spent regenerant tank room.
- Shifts control room air conditioning to the filtered air makeup mode.
- Terminates waste gas releases.
- Starts the control room airborne radioactivity monitor.

Three radiation monitors, RM-051 "Containment Gas Monitor", RM-052 "Containment/Ventilation Stack Swing Monitor", and RM-062 "Ventilation Stack Gas Monitor," input into CRHS. Each radiation monitor operates one contact which will energize a CRHS auxiliary relay if the radiation level reaches the high alarm set point. Each of the three monitors has an audible and visual alert signal that actuates at a lower radiation level than the alarm setpoint.

### EVENT DESCRIPTION

At approximately 1415 Central Daylight Time (CDT) on October 11, 1996, with the plant in Mode 5 for refueling, mechanics entered the containment to remove the Steam Generator (SG) primary side manways. The containment purge system was in service. Containment radiation monitor RM-051 was reading within the limits established by the containment purge permit.

At 1730, SG RC-2A hot leg manway was removed. At 1732, the containment purge was manually terminated due to an increase in RM-051 count rate. At 1755, the SG RC-2B hot leg manway was also removed. Between the removal of the hot leg manways and removal of the cold leg manways, High Efficiency Particulate Air (HEPA) filter ventilators were placed at the openings of the hot leg manways in such a way as to draw air from the hot leg bowls.

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At 2115, while mechanics were in both SG bays preparing for the removal of the cold leg manways, a containment purge was initiated under a new containment purge permit. The Licensed Senior Operator (LSO) received notification that cold leg manway removal was to occur within 10 to 15 minutes and a Licensed Operator (LO) was staged to monitor containment activity. At 2250:40, RM-051 went into alarm and at 2250:58, RM-062 also went into alarm. At the time of the first alarm the LSO directed an LO to secure the containment purge. At 2251:20 a CRHS occurred which initiated the VIAS. The VIAS automatically secured the containment purge.

At 0151 CDT, October 12, 1996, the NRC Operations Center was notified of an Engineered Safeguards Actuation (ESF), the VIAS trip, in accordance with 10 CFR 50.72(b)(2)(ii). This report is being submitted pursuant to 10 CFR 50.73(a)(2)(iv).

SAFETY ASSESSMENT

Although safeguards equipment was challenged the VIAS actuated as designed to limit the release of radiation to below the limits specified in 10 CFR 20 and Technical Specifications (TS).

TS 5.16.1.g. states "Limitations on the concentration resulting from radioactive material, other than noble gases, released in gaseous effluents to unrestricted areas conforming to ten times 10 CFR 20.1001-20.2401, Appendix B, Table 2, Column 1. For noble gases, the concentration shall be limited to five times 10 CFR 20.1001-20.2401, Appendix B, Table 2, Column 1."

A certified Health Physicist evaluated the event and determined that the concentration resulting from radioactive material, other than noble gases, released in the gaseous effluents was less than 0.1 percent of the TS limit. The concentration for noble gasses released was about 13 percent of the TS limit. Therefore, this event has minimal safety significance.

CONCLUSIONS

This event was caused by procedural controls which were inadequate to manage the risk of a VIAS during activities that breached the primary system boundary. The VIAS actuation occurred due to an increase in containment gaseous activity. The high gaseous activity was caused by the following:

- 1) The opening of the cold leg manways while HEPA filter ventilators were in service

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on the hot leg manways caused a rapid dispersal of xenon gas into the containment atmosphere.

- 2) A large number of fuel element failures during the previous operating cycle caused a higher than normal xenon concentration.

CORRECTIVE ACTIONS

Plant procedures will be reviewed and revised as necessary to ensure appropriate controls are in place to mitigate the possibility of a VIAS during maintenance or operational evolutions in the containment. These procedures will be revised prior to the next refueling outage (1998).

PREVIOUS SIMILAR EVENTS

Since 1991 VIAS actuations have been reported in the following LERs: 91-002, 91-009, 91-024, 92-009 and 96-001. While LER 96-001 was similar, in that VIAS was actuated, the causes were different. In that event, an improper damper configuration resulted in excessive purge flow, causing high activity levels in the containment stack, which tripped VIAS.