

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Fort Calhoun Station, Unit No. 1 DOCKET NUMBER (2) 0 5 0 0 0 2 8 5 1 OF 0 3 PAGE (3)

TITLE (4) RM-060 VIAS Actuation

EVENT DATE (6)			LER NUMBER (8)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (9)			
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES	DOCKET NUMBER(S)		
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OPERATING MODE (8) 1

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 8: (Check one or more of the following) (11)

20.402(b)	20.406(e)	XX	80.73(a)(2)(iv)	73.71(b)
20.406(a)(1)(i)	80.38(a)(1)		80.73(a)(2)(v)	73.71(a)
20.406(a)(1)(ii)	80.38(a)(2)		80.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 365A)
20.406(a)(1)(iii)	80.73(a)(2)(i)		80.73(a)(2)(viii)(A)	
20.406(a)(1)(iv)	80.73(a)(2)(ii)		80.73(a)(2)(viii)(B)	
20.406(a)(1)(v)	80.73(a)(2)(iii)		80.73(a)(2)(ix)	

POWER LEVEL (10) 0.97

LICENSEE CONTACT FOR THIS LER (12)

NAME Gary L. Roach, Supervisor-Chemical and Radiation Protection
Fort Calhoun Station, Unit No. 1

TELEPHONE NUMBER 4 0 2 4 2 6 - 4 0 1 1

AREA CODE

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRRDS

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE) NO

EXPECTED SUBMISSION DATE (15)

MONTH	DAY	YEAR

ABSTRACT (Limit to 1470 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On December 7, 1984 at 1329, a gaseous leak in the waste gas vent header caused stack iodine monitor RM-060 to initiate the Ventilation Isolation Actuation Signal (VIAS). The monitor responded to levels of noble gas and Rubidium 88 for which it was not intended. The monitor responded as designed. No technical specifications or federal regulations for release limits were violated. There were no operator errors or violations of procedures. The leak in the vent header was located and stopped.

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TEXT (if more space is required, use additional NRC Form 302A's) (17)

On December 7, 1984 with the plant in Mode 1, Power Operation, at approximately 1315 hours a chemistry technician was purging the reactor coolant sample line to the CVCS Volume Control Tank while another technician was drawing a sample of the Volume Control Tank gas space for hydrogen analysis. The purge for the gas space sample line returns to the waste gas vent header. A drain line on the vent header upstream of valve WD-703 leaked radioactive gas into Room 7 of the Auxiliary Building and into the building ventilation exhaust. RM-060, stack effluent monitor for I-131, responded to the increased effluent concentration and actuated the Ventilation Isolation Actuation Signal (VIAS) at 1329.

The VIAS performs the following functions:

1. Closes the containment purge valves.
2. Closes the containment relief valves.
3. Stops the containment purge fans.
4. Closes the containment air sampling valves.
5. Opens the inlet and outlet vent to the safety injection pump rooms and the spent regenerant tank room.
6. Places the control room air conditioning/ventilation system in the filtered air makeup mode.
7. Closes the waste gas header release valve to the stack.

The type of event described in the USAR that VIAS was designed to mitigate is a release of significant radioiodine or radiogas from the containment to the atmosphere from such sources as reactor coolant leaks. A VIAS is initiated by a Safety Injection Actuation Signal (SIAS) or a Containment Spray Actuation Signal (CSAS) or a Containment Radiation High Signal (CRHS). The CRHS feature employs five radiation monitors taking samples from the containment and/or ventilation stack. These monitors supply a 1-out-of-5 logic network to trip the VIAS lockout relays.

The five ventilation radiation monitors that actuate VIAS are also used for an isolation function similar to that performed by other process radiation monitor systems (e.g., waste evaporator condensate return line monitor and the waste liquid release to the overboard discharge header monitor). The ventilation monitors are used as process monitors in order to satisfy the Technical Specification 2.9 objective of controlling the release of radioactive effluents to the environs to as low as practicable.

Sampling of the reactor coolant system and volume control tank gas space were immediately suspended. Air samples for gaseous, particulate and halogen radionuclides were drawn and analyzed to determine the source and nature of the contaminants. The leaking valve in Room 7 of the Auxiliary Building was determined to be the cause. The highest concentration of airborne radionuclides was in Room 7 with lesser concentrations drawn to the Auxiliary Building ventilation. The total release rate for noble gases, primarily Xe133, was 4.45E2µCi/sec which is well below the Technical Specification 2.9 limit of 8.3E4µCi/sec. No particulates or halogens with half-lives greater than eight days were identified. Rubidium 88 was identified in Room 7 at the level of 3.2E-7µCi/cc. The meteorological diffusion factor from the ventilation stack to the site boundary during this period exceeded 1000. Without taking credit for in-plant dilution, the site boundary concentration of Rb88 was less than 3E-10µCi/cc versus the 10CFR20 limit of 3E-7.

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

The iodine monitor, RM-060, while limited in its response to a narrow detection window centered around 364 KeV, responded to increased Compton scattering due to the presence of noble gas in the detection chamber and Rubidium 88 collected on the monitor prefilter and cartridge. This additional "background" was sufficient to cause RM-060 to initiate VIAS. Thus, RM-060 responded as designed but not to I-131 alone as was originally intended.

When the cause and extent of the gas leak was determined, the ventilation to Room 7 was isolated. Measured levels of radionuclides in the Auxiliary Building began dropping as diffusion in the Building occurred. The measured reading on RM-060 dropped rapidly such that at 1402 hours VIAS was reset and normal ventilation resumed. Ventilation to Room 7 was resumed when the leak was temporarily repaired. Work is in progress to replace the portion of the vent header in which the leak developed. The actual piping tie-ins to the existing system will be done as operation of the vent header allows.

Other VIAS actuations that have occurred since the new LER rule went into effect on January 1, 1984 were reported in LER84-005, LER84-006, LER84-007, LER84-010, LER84-014, LER84-017, LER84-018, LER84-019, LER84-023 and LER84-024.

Omaha Public Power District
1623 Harney Omaha, Nebraska 68102
402/536-4000

January 2, 1985
LIC-85-007
FC-002-85

U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Reference: Docket No. 50-285

Gentlemen:

Licensee Event Report No. 84-025

Please find attached Licensee Event Report 84-025 dated January 7, 1985.
This report is being submitted per requirements of 10 CFR 50.73.

Sincerely,

R. L. Andrews for
R. L. Andrews
Division Manager
Nuclear Production

RLA/JJF/dao

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Fort Calhoun File (2)

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