

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Fort Calhoun Station, Unit No. 1 DOCKET NUMBER (2) 05000285 PAGE (3) 1 OF 04

TITLE (4) VIAS Actuation

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 NAMES	DOCKET NUMBER(S)		
08	03	84	84	017	00	09	02	84	N	05000		

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

OPERATING MODE (9) 1	20.402(b)	20.406(c)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10) 100	20.406(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
	20.406(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 365A)
	20.406(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
	20.406(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
	20.406(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(ix)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
Lawrence T. Kusek, Supervisor-Operations Fort Calhoun Station, Unit No. 1	AREA CODE 402 TELEPHONE NUMBER 426-4011

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS

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)

During normal plant operation at 100% power, an unplanned actuation of the Ventilation Isolation Actuation System (VIAS) occurred at 1645 on August 3, 1984. The VIAS actuation [an Engineered Safety Feature (ESF)] was initiated by the containment air activity particulate process monitor, RM-050. Just prior to the actuation, RM-050 was returned to service after a week long calibration. After being placed in service, RM-050's indicated activity increased to the high alarm setpoint and the monitor tripped, thus actuating VIAS.

A containment entry was made to inspect all areas of the building outside of the biological shield. No evidence of primary leakage was found. In addition, a review of related plant parameters revealed no evidence of abnormal primary leakage. An isotopic laboratory analysis of containment air grab samples revealed only slightly higher levels of Cs-137 and Rb-88 than last operating cycle.

After it was determined from the containment air grab sample analysis that there was no significant increase in particulate activity from the previous week's sample, the discriminator sensitivity of the RM-050 monitor was adjusted to bring the meter indications back on scale and below the alarm setpoint so that VIAS could be reset. The monitor was returned to service fully capable of trending containment activity levels and alarming/initiating VIAS if significant increases in containment activity were noted.

No operator errors or equipment malfunctions occurred. All Engineered Safety Features functioned as designed. No radioactive release occurred.

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

While operating at 100% power, RM-050 activity levels were observed to be steadily increasing and approaching the alarm setpoint of 1,000,000 cpm. Since containment air particulate monitoring is not required when the containment ventilation isolation valves are closed (Technical Specification Table 2-1, Note 4), RM-050 was taken out of service and the annual calibration procedure, ST-RM-2 (Section F.4) was performed. This indepth calibration involved calibration with various sources of known concentrations.

Following satisfactory completion of ST-RM-2 (Section F.4), RM-050 was returned to service. The indicated levels again increased, and on August 3 exceeded the alarm setpoint, thus initiating VIAS (Ventilation Isolation Actuation Signal). Following the plant startup from the last refueling, containment air particulate activity as read by RM-050 has been slightly higher than previous operating cycles.

A containment entry was made to inspect all areas of the building outside of the biological shield. No evidence of primary leakage was found. In addition, a review of related plant parameters revealed no evidence of abnormal primary leakage. An isotopic laboratory analysis of containment air grab samples revealed only slightly higher levels of Cs-137 and Rb-88 than last operating cycle.

The activity levels indicated by RM-050 were greater than the high end of the meter scale (1,000,000 cpm). After it was determined from the containment air grab sample analysis that there was no significant increase in particulate activity from the previous week's sample, the discriminator sensitivity of the RM-050 monitor was adjusted to bring the meter indications back on scale and below the alarm setpoint so that VIAS could be reset. Basically, the discriminator sensitivity was adjusted to eliminate some of the incident counts from the lower energy decays while still allowing full sensitivity to the pertinent cesium and rubidium decays. Based on the containment air grab samples, cesium and rubidium are the predominant particulate isotopes in the containment air. It is obvious that RM-050 is seeing these two isotopes because when the filter tape is advanced the monitor reading drops significantly and then increases in a relatively short time to the same level seen prior to advancing the tape. Since cesium and rubidium are known to be the predominant particulates present and since the monitor reacts so positively to sample flow, discriminator adjustment was justified. The monitor was returned to service fully capable of trending containment activity levels and alarming/initiating VIAS if significant increases in containment activity were noted.

VIAS, as described in the USAR, is designed to mitigate a release of significant radioiodine or radiogas from the containment to atmosphere from such sources as reactor coolant leaks. 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. 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.

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TEXT (If more space is required, use additional NRC Form 386A's) (17)

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 vents to the safety injection pump rooms and the spent regenerant tank room.
6. Starts both control room air conditioning units and places control room ventilation in a filtered air makeup mode.
7. Closes the waste gas header release valve to the stack.

The containment air monitoring system comprises a moving filter-paper particulate monitor (channel RM-050) and a sample chamber gas monitor (RM-051) installed in a common housing, with pump and flow controls, outside the containment at a location where background is minimal. A continuous air sample is drawn from the containment, passed through the particulate and gas monitor in series, and returned to the containment.

The sampling point for channels RM-050 and RM-051 can be switched from the containment to the ventilation discharge duct. Sampling point selection valves are controlled from panel AI-33 in the control room. Isokinetic sampling is used to ensure representative particulate sampling when in the stack monitoring mode. The capability of switching RM-050's sample point to the plant ventilation discharge duct provides the ability to sample from the stack whenever the normal stack monitors (RM-061 and RM-062) are out of service for maintenance, testing or calibration. Per Technical Specification Table 2-1, Note 4, whenever RM-050/051 are being used to sample from the ventilation discharge duct, the containment ventilation valves must be shut.

When sampling from the containment, the RM-050 alert and alarm setpoints are adjusted to give an indication of a significant increase in containment airborne activity above a predetermined background. Although VIAS will be initiated when the alarm setpoint is reached, the setpoint is not based on a Technical Specification release limit. The alarm setpoint allows the operators to trend containment activity between times that grab samples are taken. Grab samples are the primary means of analyzing for the presence of various gaseous nuclides and for airborne halogens. Grab samples are always taken and analyzed prior to initiating a containment purge or pressure relief.

When sampling from the ventilation discharge duct, the RM-050 alarm setpoint is changed to alarm and provide ventilation isolation (VIAS) prior to exceeding the release rate specified in Technical Specification 2.9(2)b.

The actuation of the VIAS signal in this case was not initiated to mitigate the consequences of an event as described in the USAR. Prior to and during this incident, containment integrity was in force and the containment ventilation valves were closed and sealed. Thus, no radioactive release to the environment occurred and the Emergency Response Plan was not initiated. All plant systems involved in this scenario operated within their design basis. No operator errors or equipment malfunctions occurred.

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TEXT (If more space is required, use additional NRC Form 368A's) (17)

Whenever RM-050's discriminator sensitivity is adjusted to bring the indicated activity back on scale, the monitor is caution tagged to ensure that the discriminator setting is returned to its normal position prior to switching the sample point to the ventilation stack and changing the alert and alarm setpoints. In addition, further data is being accumulated and analyzed to determine why the current containment particulate activity levels are running slightly higher than last operating cycle.

Other VIAS actuations that have occurred since the new LER rule went into effect on January 1, 1984 were reported in LER 84-005, LER 84-007, LER 84-006 and LER 84-014.

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

September 2, 1984
FC-732-84
LIC-84-298

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

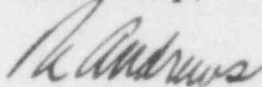
Reference: Docket No. 50-285

Gentlemen:

Licensee Event Report for
the Fort Calhoun Station

Please find attached Licensee Event Report 84-017 dated
September 2, 1984. This report is being submitted per re-
quirements of 10 CFR 50.73.

Sincerely,



R. L. Andrews
Division Manager
Nuclear Production

RLA/DJM:jmm

Attachment

cc: Mr. Richard P. Denise, Director
Division of Resident, Reactor Project
and Engineering Programs
U. S. Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76011

INPO Records Center
Mr. E. G. Tourigny, Project Manager

SARC Chairman
PRC Chairman
Mr. L. A. Yandell, Senior Resident
Inspector
Fort Calhoun File (2)

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