

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 5 PAGE (3)

TITLE (4) Containment Hydrogen Analyzer Impairment

EVENT DATE (8)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (9)		
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES	DOCKET NUMBER(S)	
09	14	84	84	020	00	10	22	84	N	05000	
										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)	50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10) 100	20.406(a)(1)(i)	50.36(e)(1)	50.73(a)(2)(v)	73.71(e)
	20.406(a)(1)(ii)	50.36(e)(2)	50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 308A)
	20.406(a)(1)(iii)	X 50.73(a)(2)(i)	50.73(a)(2)(vii)(A)	
	20.406(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(vii)(B)	
	20.406(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(viii)(B)	
	20.406(a)(1)(vi)	50.73(a)(2)(iii)	50.73(a)(2)(ix)	

LICENSEE CONTACT FOR THIS LER (12) NAME Randy J. Mueller Telephone Number 402 426-4011
Supervisor-I&C and Electrical Maintenance

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
A	I, K, A, I		C539	N					

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 fifteen single-space typewritten lines) (16)

On September 4, 1984, hydrogen analyzer VA-81B was removed from service in order to replace its catalyst bed/cell.

On September 14, 1984, during the performance of the monthly calibration, it was observed by the technician that VA-81A did not indicate the proper concentration of hydrogen in the calibration gas. Maintenance Order 843061 was immediately initiated upon discovery to investigate the span reading discrepancy. This investigation revealed that the lead wires extending from the catalyst bed/cell of analyzer VA-81A had not been properly landed. This problem was immediately corrected. Subsequently, calibration procedure CP-VA-81A-M was satisfactorily performed, and hydrogen analyzer VA-81A was returned to service. One channel of the hydrogen monitoring system was returned to service within the 72-hour time period allowed after discovery by the Technical Specifications.

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APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/85

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

The containment hydrogen monitoring system (modification FC-79-177) was accepted for operation by the Systems Acceptance Committee, a subcommittee of the Plant Review Committee, on May 4, 1983. This modification upgraded the Fort Calhoun Station's hydrogen analyzing capability, as required by NUREG-0737.

Although no specific testing requirements were specified at this time by the Technical Specifications, the plant staff initiated a monthly calibration program to verify span/zero indications using a known sample gas. In response to Generic Letter 83-37, dated November 1, 1983, the District submitted, on March 9, 1984, a license application to amend the Fort Calhoun Station Technical Specifications. This amendment application established limiting conditions for operation (LCO's) and surveillance requirements for the upgraded hydrogen monitoring system. The Commission issued Amendment 82 on August 2, 1984, and it was received by the District on August 7, 1984. Throughout this period, from system acceptance to the present, the District has performed periodic calibrations of the hydrogen analyzers in accordance with calibration procedures (CP-VA-81A/E-M). The purpose of this more frequent (Technical Specifications require quarterly calibration) calibration of the hydrogen monitors was three-fold:

- (1) Gained technician familiarity in working with the new equipment.
- (2) Aided in the verification that the manufacturer's recommended calibration frequency was sufficient to ensure that the equipment maintained calibration for the specified period of time.
- (3) Established the performance and calibration characteristics of the newly installed equipment.

Containment hydrogen analyzer VA-81A was removed from service on July 24, 1984 in order to replace the catalyst bed/cell assembly in accordance with Modification Request MR-FC-83-72. This modification was initiated and implemented by the District as corrective action for IE Information Notice 84-22, "Deficiency in Comsip, Inc. Standard Bed Catalyst". The replacement of the catalyst bed/cell was delayed in that the original replacement obtained from Comsip, Inc. was unable to pass its leak test and was therefore considered defective. A new catalyst bed/cell was ordered on July 27, 1984 and was received by the District on August 10, 1984. This catalyst bed/cell also exhibited leakage problems which resulted in a third catalyst bed/cell being ordered. This replacement was received by the District on August 14, 1984 and passed leak testing. Additional complications regarding system integrity were encountered which resulted in further delays

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

in the completion of this modification. The modification was completed, the hydrogen analyzer was believed to have been correctly calibrated, and hydrogen analyzer VA-81A was returned to service on August 23, 1984.

On September 4, 1984, hydrogen analyzer VA-81B was removed from service in order to replace its catalyst bed/cell, as required by Modification Request MR-FC-83-82. Problems were also encountered during the performance of this modification which involved the installation of a new analyzer sample pump casing and ordering a second replacement catalyst bed/cell. After these parts were received, the modification was completed, the hydrogen analyzer was properly calibrated in accordance with CP-VA-81B-M, and was returned to service on September 28, 1984.

On September 14, 1984, during the performance of CP-VA-81A-M, "Hydrogen Analyzer Monthly Calibration VA-81A", it was observed by the technician that the analyzer did not indicate the proper concentration of hydrogen in the calibration gas as required by Step 5 of the procedure. Maintenance Order 843061 was immediately initiated upon discovery to investigate the span reading discrepancy. This investigation revealed that the lead wires extending from the catalyst bed/cell of analyzer VA-81A had not been properly landed. The lead wires were immediately altered to attain the proper connections. Calibration procedure CP-VA-81A-M was then satisfactorily performed and hydrogen analyzer VA-81A was returned to service within approximately 3 hours from the original time of discovery of the problem. One channel of the hydrogen monitoring system was returned to service within the 72-hour time period allowed after discovery by the Technical Specifications.

Operations Incident 2003 was written in order to further evaluate the wiring errors discovered. The ensuing investigation revealed that the technician assigned to perform modification MR-FC-83-72 had failed to properly land the catalyst bed/cell lead wires in accordance with the vendor's instruction manual. During the performance of the required calibration following the modification work, the technician discovered the analyzer could not be properly zeroed and spanned. Rather than correct the wiring errors at the "hot box", where the catalyst bed/cell is housed, the technician changed the lead wires at a terminal block external to the "hot box". The technician then proceeded with calibration procedure CP-VA-81A-M. Although the wiring was incorrect, some span indication was observed. The span observed was not indicative of the percent hydrogen concentration of the calibration gas, as required by Step 5 of CP-VA-81A-M. The calibration procedure was signed off by the technician as having been satisfactorily completed and VA-81A was returned to service.

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Safety Analysis

During the time period when the modification to VA-81B was being performed and the wiring leads to VA-81A were improperly connected, a containment atmosphere sample could have been obtained using OI-PAP-2, Revision 2, or the newly installed post accident sampling system could have been utilized. Although the post accident sampling system was not formally accepted until September 28, 1984, the system could have been used to obtain a containment atmospheric sample throughout the aforementioned period. Analysis of the sample would be performed using gas chromatograph techniques.

In addition during this period, the hydrogen purge system was capable of performing its design function. The hydrogen purge system is the primary means to control combustible gases following a LOCA at the Fort Calhoun Station. Section 14.17 of the Updated Safety Analysis Report specifically concludes:

- a. The hydrogen purge system is an effective means of controlling the hydrogen concentrations below the lower flammability unit of 4 volume percent per Regulatory Guide 1.7.
- b. The combined offsite and LPZ boundary doses from the LOCA and due to hydrogen purging are well within the limits of 10 CFR 100.

Section 14.17 further describes the predicted rate of hydrogen generation after a LOCA. The hydrogen purge system could be operated to follow this assumed generation rate.

Corrective Action Taken To Date

Based on a thorough investigation, it has been concluded that this incident was the result of the technician not correctly following the procedure. The technician involved has been given appropriate disciplinary action, in accordance with District policy, for his failure to follow calibration procedure CP-VA-81A-M.

Although the calibration procedure used by the technician was adequate to safely and effectively calibrate hydrogen analyzer VA-81A, revisions have been incorporated to further reduce the probability of recurrence of an incident of this type.

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Additionally, as a result of the District's investigation, it has been determined that an additional post-maintenance operability check is required for the above maintenance/modification work. Subsequently, on these analyzers a surveillance test has been issued and will be specified in the future as the post-maintenance/modification operability check when doing maintenance/modification work on VA-81A or VA-81B.

A memorandum has been issued by the Assistant General Manager - Nuclear Production, Production Operations, Fuels, and Quality Assurance & Regulatory Affairs emphasizing the importance of following procedures so as to ensure the safe and efficient operation of the Fort Calhoun Station.

Corrective Action Planned

A review of the methodology used to select post-maintenance operability checks will be conducted. This review will be completed by June 30, 1985. Appropriate measures will be taken based on the results of the investigation.

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

October 22, 1984
LIC-84-357

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

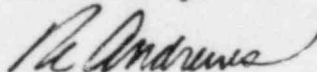
Reference: Docket No. 50-285

Gentlemen:

Licensee Event Report for the
Fort Calhoun Station

Please find attached Licensee Event Report 84-020 dated
October 22, 1984. This report is being submitted per requirements
of 10 CFR 50.73.

Sincerely,



R. L. Andrews
Division Manager
Nuclear Production

RLA/JJF:jam

cc: Mr. Dorwin R. Hunter, Chief
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