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

March 25, 1992
LIC-92-062L

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

References: 1. Docket No. 50-285
2. LER 92-006 Revision 0, from OPPD (W. G. Gates) to NRC (Document Control Desk) dated February 24, 1992 (LIC-92-057L)

Gentlemen:

Subject: Licensee Event Report 92-006 Revision 01 for the Fort Calhoun Station

Please find attached Licensee Event Report 92-006 Revision 01 dated March 25, 1992. This revision provides supplemental information regarding the cause of the event and corrective actions. Revisions to the Abstract and Text are denoted by a vertical line in the right margin. 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/lah

Attachment

c: R. D. Martin, NRC Regional Administrator
D. L. Wigginton, NRC Senior Project Manager
R. P. Mullikin, NRC Senior Resident Inspector
S. D. Bloom, NRC Project Engineer
INPO Records Center

IE22
1/1

NRC FORM 366 (6-89) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104
EXPIRES: 4/30/92

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-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

LICENSEE EVENT REPORT (LER)

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

TITLE (4)
Inoperable Alarm Function on Radioactive Waste Building Stack Monitors

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)
									N	0 5 0 0 0
0 1	2 5	9 2	9 2	— 0 0 6	— 0 1	0 3	2 5	9 2		0 5 0 0 0

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)				
POWER LEVEL (10)	0 7 9	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)	
		20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)	
		20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)	
		20.405(a)(1)(iii)	X 50.73(a)(2)(i)	50.73(a)(2)(viii)(A)		
		20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)		
		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
	AREA CODE
William J. Blessie, Shift Technical Advisor	4 0 2 5 3 3 - 1 6 8 9 6

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 fifteen single-space typewritten lines) (16)

On January 25, 1992 it was discovered that the annunciator circuitry for the Laboratory and Radioactive Waste Processing Building (LRWPB) Exhaust Stack particulate, iodine and noble gas radiation monitors would not function correctly. The as-found wiring was installed in such a way that the Control Room annunciation has not been operable from the time of acceptance of the original installation for use (September 30, 1991). The inability to provide the annunciator alarm function to the Control Room has been determined as not meeting Technical Specification 2.9.1(2)h.(i) This report is being submitted pursuant to 10 CFR 50.73(a)(2)(i)(B).

Two root causes of this event have been identified, personnel error - lack of self-checking, and inadequate specification of post-modification testing criteria. The safety significance of this incident is minimal based on the nature of the releases associated with the LRWPB Exhaust Stack.

Corrective action to make the alarm function operable and functionally test the circuit has been completed. Additional corrective actions involve training regarding self-checking and post-modification testing requirements, revision of the procedure which addresses preparation of Design Change Packages, review of recent modifications to assess the generic adequacy of post-modification testing and establishing an independent verification requirement for panel wiring and cable terminations.

The Chemistry and Radiation Protection (CARP) Building and the Radioactive Waste Building (RWB) are two new structures built as part of station 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 particulate, iodine and noble gas radiation monitors (RM-041, RM-042 and RM-043, respectively).

Technical Specification 2.9.1(2)h(i) states, in part, that the monitors shall be set in accordance with the Offsite Dose Calculation Manual (ODCM) to alarm prior to exceeding the limits specified in Technical Specification 2.9.1(2)a(i). The alarm function is provided in the Control Room on AI-33C, Windows 40 (RM-041 through RM-043, Rad Waste Bldg Stack High Radiation) and 44 (RM-041 through RM-043, Rad Waste Bldg Stack Trouble).

On January 25, 1992, RM-041, RM-042 and RM-043 were de-energized to allow installation of a temporary modification which changed the control switch for the RM-041, RM-042 and RM-043 sample pump from a momentary contact to a maintain contact switch. When the radiation monitors were de-energized, control power was lost to the annunciator control circuit and should have given Control Room Operators the associated alarms on AI-33C; however, the alarms were never received. A Maintenance Work Order (MWO) was initiated to troubleshoot the annunciator circuitry to determine the failure.

In working the MWO, it was discovered that the wire identifiers, although landed in the proper terminal board locations, did not correspond to the same conductor on opposite ends of the cable. A review of the modification package which installed the annunciator circuit revealed that there was no post-modification operability testing on the circuit. The modification had been accepted for use by plant operations. Final closeout and document update was in progress. Calibration procedures and surveillance tests for the annunciator circuit were in the final review stages and no other maintenance or testing had been performed on the annunciator circuitry prior to the discovery on January 25, 1992. The as-found wiring was installed in such a way that the Control Room annunciation has not been operable from the time of acceptance of the original installation for use (September 30, 1991).

The inability to provide the annunciator alarm function to the Control Room has been determined as not meeting Technical Specification 2.9.1(2)h(i) which indicates the monitors shall be set to alarm prior to exceeding specified limits. This report is being submitted pursuant to 10 CFR 50.73(a)(2)(i)(B).

Two root causes of this event have been identified, personnel error - lack of self-checking, and inadequate specification of post-modification testing criteria. Had the individuals who installed the annunciator circuit practiced adequate self-checking, the wiring error itself would not have occurred. Additionally, if adequate post-modification testing criteria had been specified, the wiring error would have been detected prior to declaring the system operable.

The following two contributing causes have also been identified: 1) inadequate review by the responsible individuals to identify the need for functional testing; and 2) inadequate procedure, in that procedure EWP-8, 'Termination of Conductors,' does not contain adequate controls or guidance to assure that wiring errors of this nature do not occur.

The maximum annual doses at the site boundary from releases through the LRWPB Exhaust Stack has been estimated at 2.25E-5 mRem using the bounded case of 1% failed fuel inventory in the Reactor Coolant System (RCS) and the annual average X/Q. RCS coolant activity was equivalent to only 0.0088% failed fuel at the end of Cycle 13 (February 1, 1992). Thus, the safety significance of this incident is minimal.

Corrective action to make the alarm function operable and functionally test the circuit has been completed. Also, abbreviated self-checking training for Construction Management craft personnel was conducted in January 1992. The following additional corrective actions will be completed:

1. Procedure PED-GEI-3, 'Preparation of Design Change Packages,' will be revised by July 1, 1992 to include the standardized test matrix presently included in procedure PED-GEI-28, 'Preparation of Construction Work Procedures.'

2. Following completion of item 1. above, training will be provided by November 1, 1992 to Design Engineers on Procedure PED-GEI-3 requirements for specification of post-modification testing.

3. Formal self-checking training for Construction Management craft personnel will be conducted prior to the 1993 refueling outage.

4. A review of 1992 outage modifications will be conducted by May 1, 1992 to verify that adequate post-modification testing was specified. A similar review of 1991 on-line modifications will be conducted by August 1, 1992.

5. Refresher training will be conducted by November 1, 1992 for System Engineers to ensure that they are cognizant of post-modification testing requirements. (A System Engineer normally serves as Chairman of the Station Modification Acceptance & Review Team for each Modification Request.)

6. An independent verification requirement will be established (in procedure EWP-8 or other procedure) by August 3, 1992 for panel wiring and cable terminations.

Two other incidents related to the operation of RM-041, RM-042 and RM-043 have been reported in LERs 91-028 and 92-001.