NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/85

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 2

TITLE (4)
Reactor Trip

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)
0 7	2 2	8 4	8 4	0 1 3	0 0	0 8	2 1	8 4	N	0 5 0 0 0
										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 8 3	20.402(b)	20.405(c)	X 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)	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
Randy J. Mueller, Supervisor-I&C and Electrical Field Maintenance Fort Calhoun Station, Unit No. 1	AREA CODE 4 0 2 — 4 2 6 - 4 0 1 1

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	
X	I M	T 1 C	X 9 9 9	Y							

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)

At approximately 2150 on July 22, 1984, while operating at 83% power, the Fort Calhoun Station Unit No. 1 received trip signals on both "A" and "C" channels of the Thermal Margin Low Pressure (TMLP) reactor protective system trip circuits. Since the reactor protective system acts to trip the reactor on a two-out-of-four channel to trip logic, the reactor subsequently tripped.

Tripping of the "A" and "C" TMLP trip channels of the RPS was initiated by noise spikes received by temperature loops feeding TMLP calculator inputs. These noise spikes occurred while operating the Pressurizer Quench Tank Vent Valve, HCV-155. It is important to note that conditions which would have legitimately caused a TMLP trip on "A" or "C" channels, i.e., low pressure on the Reactor Coolant System as evidenced by a low pressurizer pressure signal, did not exist at the time of the trip.

The following corrective measures were taken to alleviate the noise spikes on the TMLP channel calculators: (1) noise suppressors were installed across the HCV-155 solenoid valve coil electrical leads and electrical leads of an associated control relay and (2) administrative controls were established to bypass RPS channels "A" and "C" temperature inputs prior to operating HCV-155. Additional corrective measures planned are described in the text.

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

At approximately 2150 on July 22, 1984, the Fort Calhoun Station was operating at the following levels: 83% power, 536°F reactor coolant cold leg temperature, and 2115 psi reactor coolant pressure.

The "A" and "C" TMLP channels tripped due to noise spikes received when HCV-155 was operated. Actual TMLP conditions were not present at the time of the trip.

Following the reactor trip, specific temperature indicators were verified to jump or spike coincident with the cycling of HCV-155. These temperature indicators are associated with temperature loops which feed input signals to the "A" and "C" TMLP calculators. Subsequent troubleshooting revealed the noise problem to be initiating in temperature loop wire/cabling which travelled through control room panel CB-1/2/3. In addition, it is important to note the spiking problem associated with the cycling of HCV-155 was intermittant but consistently present when monitoring the temperature input to the "C" channel TMLP calculator. That is, per every 15 cycles of HCV-155 significant spikes were received at the TMLP calculator input approximately 10-12 times. However, the spiking problem associated with the "A" channel TMLP calculator temperature inputs could not be duplicated.

To alleviate the noise spikes on the "C" channel temperature inputs to the TMLP calculator, the following repair or corrective measures were undertaken: (1) noise suppressors were placed across the HCV-155 solenoid valve coil electrical leads and also across the coil leads of a control relay associated with HCV-155. This eliminated the spiking problem induced into the temperature inputs to the "C" channel TMLP calculator when the HCV-155 valve was cycled "open" and decreased the magnitude of the spike induced when the HCV-155 valve was closed; (2) administrative controls were initiated restricting the use of HCV-155, i.e., measures to ensure all trip units of the "A" and "C" RPS channels affected by temperature inputs are bypassed prior to and while cycling HCV-155; (3) Modification Request MR-FC-84-139 has been initiated to install capacitors at strategic locations in the reactor protective system TMLP calculator. These capacitors will effectively eliminate any noise of the type received by cycling HCV-155 prior to affecting the TMLP calculator or TMLP setpoints. These capacitors will be installed on temperature inputs to all four reactor protective system channels.

Throughout the incident, the RPS was operable and fully capable of tripping the reactor on actual TMLP conditions, had it been required.

This is the first reportable occurrence concerning noise problems on the RPS which caused a reactor trip.

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

August 21, 1984
FC-705-84
LIC-84-278

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 84-013 dated August 21, 1984. This report is being submitted per requirements of 10 CFR 50.73.

Sincerely,

R. L. Andrews
Division Manager
Nuclear Production

RLA/jmm

Attachment

cc: Mr. Richard P. Denise, Director
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& Engineering Programs
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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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