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ACCESSION NBR:9106270326 DOC.DATE: 91/06/21 NOTARIZED: NO DOCKET #
 FACIL:50-263 Monticello Nuclear Generating Plant, Northern States 05000263
 AUTH.NAME AUTHOR AFFILIATION
 FREBORG,J.G. Northern States Power Co.
 PARKER,T.M. Northern States Power Co.
 RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 91-012-00:on 910524,Unplanned emergency filtration
 train actuation occurred.Caused by momentary loss of power
 to control room ventilation-filtration train control logic.
 Electronic current fuses revised.W/910621 ltr.

DISTRIBUTION CODE: IE22T COPIES RECEIVED:LTR 1 ENCL 1 SIZE: 5
 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

NOTES:NRR/LONG,W.

05000263 A

RECIPIENT ID CODE/NAME	COPIES LTTR ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL
PD3-1 LA	1 1	PD3-1 PD	1 1
LONG,B.	1 1		
INTERNAL: ACNW	2 2	AEOD/DOA	1 1
AEOD/DSP/TPAB	1 1	AEOD/ROAB/DSP	2 2
NRR/DET/ECMB 9H	1 1	NRR/DET/EMEB 7E	1 1
NRR/DLPQ/LHFB10	1 1	NRR/DLPQ/LPEB10	1 1
NRR/DOEA/OEAB	1 1	NRR/DREP/PRPB11	2 2
NRR/DST/SELB 8D	1 1	NRR/DST/SICB8H3	1 1
NRR/DST/SPLB8D1	1 1	NRR/DST/SRXB 8E	1 1
<u>REG FILE</u> 02	1 1	RES/DSIR/EIB	1 1
RGN3 FILE 01	1 1		
EXTERNAL: EG&G BRYCE,J.H	3 3	L ST LOBBY WARD	1 1
NRC PDR	1 1	NSIC MURPHY,G.A	1 1
NSIC POORE,W.	1 1	NUDOCS FULL TXT	1 1

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Northern States Power Company

414 Nicollet Mall
Minneapolis, Minnesota 55401-1927
Telephone (612) 330-5500

June 21, 1991

Report Required by
10 CFR Part 50. Section 50.73

Director of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

MONTICELLO NUCLEAR GENERATING PLANT
Docket No. 50-263 License No. DPR-22

Momentary Loss of Power to Control Logic Results
In Unplanned Emergency Filtration Train Actuation

The Licensee Event Report for this occurrence is attached.

This event was reported via the Emergency Notification System in accordance with 10 CFR Part 50, Section 50.72 on May 24, 1991.

Thomas M Parker
Manager
Nuclear Support Services

c: Regional Administrator - III NRC
Sr Resident Inspector, NRC
NRR Project Manager, NRC
MPCA
Attn: Dr J W Ferman

Attachment

9106270326 910621
PDR ADDCK 05000263
S PDR

JE27

EXPIRES: 4/30/92

LICENSEE EVENT REPORT (LER)

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-510), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)

Monticello Nuclear Generating Plant

DOCKET NUMBER (2)

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PAGE (3)

TITLE (4) Momentary Loss of Power to Control Logic Results
In Unplanned Emergency Filtration Train 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)
05	24	91	1991	012	00	06	21	91		050000

OPERATING MODE (9)

N

POWER LEVEL (10)

000

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more of the following) (11)

20.402(b)

20.406(e)

80.73(a)(2)(iv)

73.71(b)

20.406(a)(1)(i)

80.73(a)(1)

80.73(a)(2)(v)

73.71(c)

20.406(a)(1)(ii)

80.73(a)(2)

80.73(a)(2)(vi)

OTHER (Specify in Abstract below and in Text, NRC Form 368A)

20.406(a)(1)(iii)

80.73(a)(2)(i)

80.73(a)(2)(vii)(A)

20.406(a)(1)(iv)

80.73(a)(2)(ii)

80.73(a)(2)(vii)(B)

20.406(a)(1)(v)

80.73(a)(2)(iii)

80.73(a)(2)(x)

LICENSEE CONTACT FOR THIS LER (12)

NAME

James G Freborg, Engineer II

TELEPHONE NUMBER

AREA CODE

612 295-1375

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)

EXPECTED SUBMISSION DATE (15)

MONTH DAY YEAR

YES (If yes, complete EXPECTED SUBMISSION DATE)

XX NO

ABSTRACT (Limit to 1400 words, i.e., approximately fifteen single-space typewritten lines) (16)

ABSTRACT

During the 1991 refueling outage, both trains of the Control Room Ventilation-Emergency Filtration Train system were tripped into the emergency mode of operation. The cause of the event was a momentary loss of power to control logic during an automatic transfer of station power from the 2R transformer to the 1R transformer. Once the cause of the event was determined, control room personnel restored both trains of the Control Room Ventilation-Emergency Filtration Train system to normal operating status. Corrective actions include revising setpoints for the current limiting fuses and ground detection relay that monitor the source to 2R transformer and determining the feasibility of eliminating the automatic actuation of the Control Room Ventilation-Emergency Filtration Train system.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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.

FACILITY NAME (1) Monticello Nuclear Generating Plant	DOCKET NUMBER (2) 0 5 0 0 0 2 6 3	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		9 1	0 1 2	0 0	0 2	OF	0 4

TEXT (If more space is required, use additional NRC Form 365A's) (17)

DESCRIPTION

At 1735 CDT, May 24, 1991 with the reactor shutdown for refueling, both trains of the Control Room Ventilation-Emergency Filtration Train system (EIIS Component Code: AHU) were initiated into the high radiation mode of operation due to an auto-transfer of station power supply from the 2R transformer (EIIS Component Code: XFMR) to the 1R transformer.

During startup of the 12 Reactor Feedwater Pump (EIIS Component Code: P), with station power being supplied from the 2R transformer, a current limiting fuse (EIIS Component Code: FU) between the 2RS transformer and the 2R transformer actuated causing a phase imbalance and subsequent auto-transfer from the 2R transformer to the 1R transformer. This transfer resulted in a momentary loss of bus voltage and the Control Room Ventilation-Emergency Filtration Train System initiated into the high radiation mode upon loss of power to the control logic. The plant was in a stable condition at all times and all systems affected by the transfer of power functioned as designed. The Control Room Ventilation-Emergency Filtration Train system was not required to be operable at the time of the event. This event is reportable because it involved an unplanned initiation of an engineered safety feature. Once the cause of the event was determined, both trains of the Control Room Ventilation-Emergency Filtration Train System were returned to their normal lineup by the control room operators at approximately 1745.

ROOT CAUSE

The cause of the event was a momentary loss of power to the Control Room Ventilation-Emergency Filtration Train control logic during an auto-transfer of station power from the 2R transformer to the 1R transformer. The auto-transfer was initiated by the actuation of the B phase electronic current limiting fuse in the substation during the start of 12 Reactor Feedwater Pump. Opening of the B phase fuse caused a phase imbalance which was detected by the ground detection relay (EIIS Component Code: 64) that initiated the auto-transfer of power.

LICENSEE EVENT REPORT (LER)
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The initial investigation included meggering the affected cabling and substation structures to determine if a ground fault existed. No ground fault was found and this was confirmed later when 2R transformer was re-energized without any problems. Next, the electronic current limiting fuse was investigated to determine why it blew. The electronics and fuse element were removed and returned to the manufacturer for analysis. Current measurements were taken on the 12 Reactor Feedwater Pump motor during the starting sequence. It appears that the starting current of the Reactor Feedwater Pump motor approached the setpoint of the fuse causing it to blow. The setpoint of the fuse was selected to minimize the available fault current to the 4KV switchgear which provided a small margin above the calculated Reactor Feedwater Pump Motor starting current. However, this investigation indicates that the fuse setpoint selected did not provide adequate margin for the starting transient of the plant's largest motors, the 6000 horsepower Reactor Feedwater Pump motors.

In parallel with the fuse is a current limiting reactor which continued to supply B phase current when the fuse blew. However, the B phase reactor caused a phase imbalance large enough to be detected by the ground detection relay which locked out the 2R transformer and initiated an open transfer to the 1R transformer. The electronic current limiting fuse and reactor design had been installed during the 1991 refueling outage and were undergoing testing when this event occurred.

ANALYSIS

The function of the Control Room Ventilation-Emergency Filtration Train System is to maintain habitability of the Control Room during a toxic chemical release or in the event of radiation detection in the outside air. In addition, the system is designed to provide adequate cooling and ventilation to the Control Room for protection of electrical equipment and personnel comfort. The Control Room Ventilation-Emergency Filtration Train System was operating normally prior to the event and initiated into the high radiation mode as expected upon the loss of power to the control logic. The system functioned as designed. There were no consequences to the health and safety of the public as a result of this event since there was no release of radiation or toxic chemicals. While there were no direct safety consequences from this event, it represents an undesirable, unplanned actuation. Such events should be minimized to reduce equipment wear and maintain operational control. The event could not have had more severe consequences regardless of initial conditions because the Control Room Ventilation-Emergency Filtration Train system did fail safe. The Control Room Ventilation-Emergency Filtration Train system was returned to the pre-event status in approximately 10 minutes.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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TEXT (If more space is required, use additional NRC Form 356A's) (17)

CORRECTIVE ACTIONS

1. 2R transformer will be placed in standby service until all issues involving this power transfer are resolved.
2. The setpoint of the electronic current limiting fuses will be revised to ensure a Reactor Feedwater Pump start will not overlap with the fuse setting.
3. The setpoint of the ground detection relay will be revised to avoid actuation on a phase imbalance caused by a blown fuse.
4. 2R transformer will be tested with the revised setpoints to confirm proper starting capability for the Reactor Feedwater Pumps.
5. Control room dose calculations suggest that the automatic start feature of the Control Room Ventilation-Emergency Filtration Train system may not be necessary. Doses remain within allowables even with the delay that would occur for manual actuation. The feasibility of eliminating the automatic start feature of the Control Room Ventilation-Emergency Filtration Train system will be pursued.

ADDITIONAL INFORMATION

Failed Component Identification:

None

Previous Similar Events:

LER 91-001 reported a similar event involving a loss of power which caused the Emergency Filtration Train to transfer to the high radiation mode during performance of the monthly surveillance test. No cause for the loss of power was ever identified, and the corrective actions taken at that time could not have prevented the May 24, 1991 event.