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APR 26 1984

Attachment
4410-84-L-0038

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NRC Form 306
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/85

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)
Three Mile Island Unit 2

DOCKET NUMBER (2)

0 5 0 0 0 3 2 0

PAGE (3)

1 OF 0 3

TITLE (4)

Loss of Auxiliary Building Exhaust Flowrate *system*

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	2	1	4	8	4	8	4	0	0	1	0 0 0 3 0 9 8 4	
THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)												
OPERATING MODE (9)			20.402(b)			20.406(e)			50.73(a)(2)(iv)			73.71(b)
POWER LEVEL (10)			20.406(a)(1)(i)			50.38(e)(1)			50.73(a)(2)(v)			73.71(c)
0 1 0 1 0			20.406(a)(1)(ii)			50.36(e)(2)			50.73(a)(2)(vi)			OTHER (Specify in Abstract below and in Text, NRC Form 356A)
			20.406(a)(1)(iii)			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)			

LICENSEE CONTACT FOR THIS LER (12)
NAME
Russell D. Wells, TMI-2 Licensing Engineer

TELEPHONE NUMBER

AREA CODE

7 1 7

9 4 8 1 8 4 6 0

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDs	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDs
B	V,F	0 0 7 4	G 0 8 0	N					

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)

At approximately 0855 hours on February 14, 1984, the Auxiliary Building exhaust fans AH-E-8A/B tripped which, by design, tripped the Auxiliary Building supply fans AH-E-7A/B. However, due to not receiving an alarm on Panel 25 to alert the operators, the event was not discovered until 0935 hours. Since Submerged Demineralizer System processing and Reactor Building purging were in progress at the time of the event, Technical Specification 3.9.12.2 and Operating Procedure 2104-9.1 (Reactor Building Purge using the Modified Purge System) were violated. This event is reportable pursuant to 10 CFR 50.73(a)(2)(i)(B) and 50.73(a)(2)(ii)(c). At 1235 hours on February 14, 1984, the exhaust and supply fans were restarted by lifting the leads on the flowswitches for the exhaust fans. The cause of the fan trips cannot be positively identified, however, it is believed that fluctuation of the exhaust flowrate may have caused the d/p across the flowswitch for 8A to decrease below the trip setpoint. This LER is similar in nature to LER's 83-48 and 83-07.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/85

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
Three Mile Island Unit 2	0 5 0 0 0 3 2 0	8 4	- 0 0 1	- 0 0	0 2	OF	0 3

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

I. PLANT OPERATING CONDITIONS BEFORE THE EVENT

At the time of the occurrence, the Unit 2 facility was in a long-term cold shutdown state. The reactor decay heat was being removed via loss to ambient. Throughout the event there was no effect on the Reactor Coolant System or the core. Auxiliary Building exhaust fans (IEEE 805 System Code - VF) AH-E-8A/B and supply fans AH-E-7A/B were operating. Unit 1's ventilation was secured.

II. STATUS OF STRUCTURES, COMPONENTS, OR SYSTEMS THAT WERE OPERABLE AT THE START OF THE EVENT AND THAT CONTRIBUTED TO THE EVENT

At the time of the event, Auxiliary Building exhaust fans AH-E-8C/D were out-of-service for repair.

III. EVENT DESCRIPTION

At approximately 0855 hours on February 14, 1984, Auxiliary Building exhaust fans AH-E-8A/B tripped. However, since the "fan trip" alarm or "low-flow" alarm (IEEE 805 System Code - IB) was not received in the Control Room, the event was not detected until 0935 hours during a routine check of Panel 25. Since exhaust fans AH-E-8C/D were out-of-service for repairs, the Unit was placed into Action Statement (b) of Technical Specification 3.9.12.2 which requires the suspension of all operations involving movement of liquid and gaseous radioactive wastes in the Auxiliary Building. Since Submerged Demineralizer System (no applicable IEEE 805 System Code) and Reactor Building purging (IEEE System Code - VA) were in progress at the time of the event, Technical Specification 3.9.12.2 was violated. Additionally, Operating Procedure 2104-9.1, Revision 13, which requires Reactor Building purge to be secured when a trip of the Auxiliary Building ventilation occurs, was also violated. This event is reportable pursuant to 10 CFR 50.73 (a) (2) (i) (3) since a condition existed which was prohibited by the plant's Technical Specifications and 10 CFR 50.73(a) (2) (ii) (c) since a condition existed which was not covered by the plant's operating procedures.

This event was caused by the tripping of exhaust fans AH-E-8A/B and the failure of either the "low-flow" alarm or the "fan trip" alarm to annunciate. The cause of the exhaust fan trips cannot be positively identified. Immediately following the discovery of the fan trips, attempts to restart 8A/B failed as the fans would trip after running for one to two minutes. Maintenance personnel then performed troubleshooting of the Auxiliary Building ventilation system which included checking the fan belts and current readings. Two subsequent attempts at restarting the exhaust fans also failed. After completion of initial troubleshooting, Maintenance suspected a problem in flow switches AH-FS-5319 and AH-FS-5285 (IEEE System Code - FS). These switches detect flow in the discharge duct of exhaust fans AH-E-8A/B, respectively. At 1235 hours on February 14, 1984, the normally closed leads on AH-FS-5319/5285 were lifted which allowed AH-E-8A/B to start and continuously run. The Auxiliary Building exhaust flowrate was returned to normal and AH-E-8A/B were returned to OPERABLE status.

After restarting the exhaust fans, AH-FS-5319/5285 were both checked for setpoint

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Three Mile Island Unit 2	0 5 0 0 0 3 2 0	8 4	- 0 0 1	- 0 0	0 3	OF	0	3		

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

calibration and found to be within specification. The d/p from the sensing lines showed 0.7" H₂O at AH-FS-5285 and .15" H₂O at AH-FS-5319. When the d/p decreases below 0.8" H₂O, this causes the exhaust fans to trip. Maintenance then secured one of the supply fans and observed that with a combination of Unit 1 ventilation secured and only one supply fan operating, the d/p across AH-FS-5319 varied between 0.06" and 0.15" H₂O. This accounts for the fan trips following the initial trip of AH-E-8A/B. The stripcharts for the Auxiliary Building exhaust show that prior to the event, the exhaust flowrate was fluctuating between 49,500 cfm to 72,000 cfm. This may have caused the d/p across AH-FS-5319 to fluctuate below 0.08" H₂O and thus trip the exhaust fans. The cause of the "low-flow" alarm failing to actuate when AH-E-8A/B initially tripped has been attributed to a design deficiency. Flowswitches AH-FS-5319/5285 close on low-flow which in turn energizes a relay which actuates the low-flow alarm. However, due to a design problem, the relay did not remain energized long enough to actuate the low-flow alarm. The correlation between the interlocks for the flowswitches causing the alarm relay to de-energize was not identified until this event. The "fan trip" alarm, by design, should not have actuated. The exhaust "fan trip" alarm only actuates when there is a fire or an electrical overload occurs.

IV. CORRECTIVE ACTIONS PLANNED

A design change has been issued to modify the alarm relay circuits for the Auxiliary Building and Fuel Handling Building exhaust fans to ensure that alarms will actuate whenever low flow occurs. This will be performed in conjunction with a current design change to modify the alarm circuitry such that an alarm will be received whenever a fan trip occurs (including a manual trip). These design changes will immediately alert the Control Room Operators when a fan trip or low flow condition occurs in order that immediate corrective actions can be taken to identify the cause of the occurrence.

V. COMPONENT FAILURE DATA

Alarm Relay - General Electric, Model No. CR120 A03322 AA.

Auxiliary Building HVAC System - designed by Burns and Roe, Inc. 1975.

VI. AUTOMATIC OR MANUALLY INITIATED SAFETY SYSTEM RESPONSES

N/A

VII. ASSESSMENT OF THE SAFETY CONSEQUENCES AND IMPLICATIONS OF THE EVENT

Upon detection of the loss of exhaust flowrate, all operations involving movement of liquid and gaseous radioactive waste were suspended. Thus, this event had no effect on the health and safety of the public.



GPU Nuclear Corporation

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4410-84-L-0038

March 9, 1984

Office of Inspection and Enforcement
Attn: Dr. Thomas E. Murley
Regional Administrator
US Nuclear Regulatory Commission
Region I
631 Park Avenue
King of Prussia, PA 19406

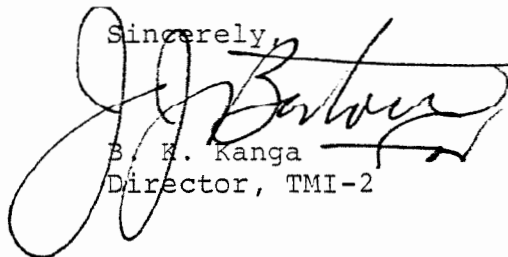
Dear Dr. Murley:

Three Mile Island Nuclear Station, Unit 2 (TMI-2)
Operating License No. DPR-73
Docket No. 50-320
Licensee Event Report 84-01

Attached is Licensee Event Report 84-01 concerning the
loss of Auxiliary Building Exhaust flowrate on February 14,
1984.

This event is considered reportable under Section 50.73(a)
(2)(i)(B) and 50.73(a)(2)(ii)(c) of Title 10 of the Code
of Federal Regulations.

Sincerely,



B. K. Kanga
Director, TMI-2

BKK/RDW/jep

Attachments

CC: Program Director - TMI Program Office, Dr. B. J. Snyder
Deputy Program Director - TMI Program Office,
Mr. L. H. Barrett

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