



**CENTERIOR
ENERGY**

PERRY NUCLEAR POWER PLANT

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Robert A. Stratman
VICE PRESIDENT - NUCLEAR

August 26, 1994
PY-CEI/NRR-1850L

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

Perry Nuclear Power Plant
Docket No. 50-440
LER 94-018

Gentlemen:

Enclosed is Licensee Event Report 94-018 concerning Automatic Actuation of Annulus Exhaust Gas Treatment System Standby Train.

If you have questions or require additional information, please contact Mr. James D. Kloosterman, Manager - Regulatory Affairs at (216) 280-5833.

Very truly yours,

RAS:LKR:sc

for R. A. Stratman

Enclosure: LER 94-018

cc: NRC Project Manager
NRC Resident Inspector Office
NRC Region III

9408310125 940826
PDR ADDCK 05000440
S PDR

Operating Companies
Cleveland Electric Illuminating
Toledo Edison

JE27

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNRB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20585-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)

Perry Nuclear Power Plant, Unit 1

DOCKET NUMBER (2)

05000-440

PAGE (3)

1 OF 4

TITLE (4)

Automatic Actuation of Annulus Exhaust Gas Treatment System Standby Train

EVENT DATE (5)			LER NUMBER (6)			REPORT NUMBER (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
07	29	94	94	018	00	08	26	94		05000
									FACILITY NAME	DOCKET NUMBER
										05000

OPERATING MODE (9)	4	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)								
POWER LEVEL (10)	00	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
		20.405(a)(1)(iii)			50.73(a)(2)(i)			50.73(a)(2)(viii)(A)		(Specify in Abstract below and in Text, NRC Form 366A)
		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

Linda K. Routzahn, Compliance Engineer

TELEPHONE NUMBER (Include Area Code)

(216) 280-5781

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRPDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRPDS
X	VC	PDC	B045	Yes					

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 15 single-spaced typewritten lines) (16)

On July 29, 1994 the standby train of the Annulus Exhaust Gas Treatment System (AEGTS) automatically started due to a low flow condition on the operating AEGTS train.

The cause of the event was failure of a signal selector card in the operating AEGTS train control loop. The card failure resulted in a low flow condition on the operating train, and the standby train started as designed.

Corrective actions for the event included replacement of the failed signal selector card and subsequent retest to verify proper system operation. In addition, licensed plant operators will receive training on this event as a part of requalification training.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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FACILITY NAME (1)		DOCKET NUMBER (2)		LER NUMBER (6)			PAGE (3)
Perry Nuclear Power Plant, Unit 1		05000-440		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 4
				94	018	00	

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

I. Introduction

On July 29, 1994 the standby train of the Annulus Exhaust Gas Treatment System (AEGTS) [VC] automatically started due to a low flow condition on the operating AEGTS train.

At the time of the event, the plant was in cold shutdown with reactor power at zero percent, reactor pressure at zero psig and reactor temperature at 120 degrees F.

This event is reported pursuant to 10CFR50.73(a)(2)(iv), as an automatic actuation of an engineered safety feature.

II. Description of the Event

On July 29, 1994 at 1707 hours, with the Annulus Exhaust Gas Treatment System (AEGTS) 'B' train in service, the AEGTS 'A' train exhaust fan [FAN] automatically started from standby status. The 'A' train fan started as designed, due to a low flow condition on the 'B' train.

The low flow condition concurrently alarmed on the Heating, Ventilating and Air Conditioning Control Panel [PL] annunciators [ANN] in the plant control room. Control room operators observed that the 'B' train exhaust damper [DMP] was fully open and the recirculation damper [DMP] was fully closed, rather than the normal modulated damper positions. Annulus differential pressure indication was noted as greater than normal. Preliminary investigation by Instrumentation and Control (I&C) technicians indicated the failure of a signal selector card in a pressure control unit [PDC] in the AEGTS 'B' train. The pressure control unit provides electrical signals to the exhaust and recirculation damper position controller.

Operators assumed manual control of the 'B' train damper controller and restored annulus pressure to within the normal pressure band. The 'B' train was then declared inoperable as of 1707 hours and placed in secured status at 1756 hours, with the 'A' train in service.

On July 30, 1994 I&C technicians replaced the suspect signal selector card and a functional retest indicated proper system operation. The 'B' train was returned to service and the 'A' train returned to standby status at approximately 1745 hours on July 30, 1994.

III. Cause of Event

The cause of this event is failure of the signal selector card in the

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pressure control unit of the AEGTS 'B' train control loop (Bailey Meter Company type 747 Signal Selector, model number 747010AAAE1).

The control loop includes the pressure control unit which receives input of annulus differential pressure from two differential pressure transmitters located in the shield building. The pressure control unit selects and compares the smaller of the two input signals to a specified setpoint. If the selected signal is below the specified setpoint, a signal is provided to a damper controller which repositions the AEGTS train exhaust and recirculation dampers to maintain the required negative pressure in the annulus.

Failure investigation identified that a fuse on the signal selector card had activated due to non-induced failure of other undetermined card components. This eliminated the output of the card from the control loop and provided the control loop with an output signal equivalent to zero negative pressure in the annulus. The control loop responded by closing the recirculation damper and opening the exhaust damper, directing all AEGTS 'B' train flow to the Unit 2 plant vent to restore annulus differential pressure. This created a low flow condition on the 'B' train, since annulus in-leakage is less than the fan's low flow setpoint. The 'A' train exhaust fan automatically started as designed in response to the low flow condition.

IV. Analysis of Event

The AEGTS is designed to continuously discharge filtered air from the reactor building [NG] annulus. The system maintains negative pressure in the annulus with respect to the shield building and containment [NH]. The negative pressure in the annulus causes all leakage through the shield building and containment to flow into the annulus, ensuring that any leakage from the containment vessel will be filtered through the AEGTS. The AEGTS consists of two identical 100 percent capacity trains, with one train normally in operation and the other normally in standby. The exhaust fan of the standby train automatically starts if the operating train air flow is low, as sensed by a velocity flow switch. The AEGTS operated as designed during this event in response to low flow on the operating train. Annulus negative differential pressure remained equal to or greater than required during this event. Spurious actuation of the standby AEGTS train has no adverse safety consequences and this event is not considered safety significant.

V. Previous Similar Events

A review of previous events identified five previous automatic actuations

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of the standby train of the AEGTS system (LERs 87-043, 87-069, 89-016, 91-007, 93-006). Three of the previous events are dissimilar in that the actuations were due to causes other than component failure. Two events were caused by component failure but are dissimilar in that the events involved setpoint drift of differential pressure switches. Corrective actions for the previous events could not have been reasonably expected to preclude the July 29, 1994 event.

No other events were identified involving failure of similar signal selector cards.

VI. Corrective Actions

Corrective actions for the event included replacement of the failed signal selector card and subsequent retest to verify proper system operation.

In addition licensed plant operators will receive training on this event as a part of requalification training. The training will be completed by November 7, 1994.

Energy Industry Identification System codes are identified in the text as [XX].