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)
Limerick Generating Station - Unit 1	0 5 0 0 0 3 5 2	1 OF 0 13

TITLE (4)
Reactor Enclosure HVAC Isolation

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	0 5	8 5	8 5	- 0 2 3	- 0 0	0 3	0 7	8 5		0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9)	4	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	0 0 0	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
John C. Nagle, Engineer	AREA CODE 2 1 5 8 4 1 - 5 1 8 4

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	
B	V I A	F A N	A 3 1 0	N							

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)

Abstract: 85-023

On February 5, 1985, at 5:57 a.m., with Unit 1 in cold shutdown, an Engineered Safety Feature (ESF) actuation occurred. The 'B' Reactor Enclosure Equipment Compartment exhaust fan failed, resulting in low differential pressure between the Reactor Enclosure and the outside environment. As a result, the Reactor Enclosure Isolation System (an engineered safety feature) initiated an HVAC isolation, and the Standby Gas Treatment System (SGTS) activated as designed. However, the Reactor Enclosure Recirculation System (RERS) was blocked out-of-service for maintenance at the time of the event and was therefore unable to start in response to the HVAC system isolation.

The isolation was reset and the 'A' Reactor Enclosure Equipment Compartment exhaust fan was placed in service.

IE 22
1/1

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Limerick Generating Station Unit 1	0 5 0 0 0 3 5 2	8 5	— 0 1 2 3	— 0 0	0 2 OF 0 3

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

Description of the Event:

On February 5, 1985, at 5:57 a.m., with Unit No. 1 in cold shutdown, the 'B' Reactor Enclosure Equipment Compartment exhaust fan failed, resulting in low air flow rate from the fan and therefore low differential pressure (dp) between the Reactor Enclosure and the outside environment.

The Reactor Enclosure is normally maintained at a slightly negative pressure (in relation to the outside) to prevent the exfiltration of potentially contaminated air to the environment. Low differential pressure is one of several inputs, such as low reactor water level, high drywell pressure, and high radiation which can isolate the normal ventilation systems and initiate engineered safety feature systems.

The Standby Gas Treatment System (SGTS) responded correctly to the Reactor Enclosure HVAC isolation and activated as a result of the event. However, the Reactor Enclosure Recirculation System (RERS) was blocked out-of-service for maintenance as permitted by the Technical Specifications and was prevented from activating in response to the HVAC system isolation. (The RERS is designed to recirculate air when the normal ventilation fans are shutdown.)

The isolation was reset at approximately 6:13 a.m. and the 'A' Equipment Compartment exhaust fan placed in service. The 'B' exhaust fan was repaired and placed in standby.

Consequences of the Event:

Since the unit was in cold shutdown, secondary containment integrity was not required. The consequences of this event are minimal.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Limerick Generating Station Unit 1	0 5 0 0 0 3 5 2	8 5	— 0 1 3	— 0 0	0 2 OF 0 3

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

Cause of the Event:

Failure of the 'B' Equipment Compartment exhaust fan was caused by a loose pneumatic fitting to the pitch controller on the fan. The pitch controller sets the pitch, or angle, of the fan blades, which controls the increase in pressure across the fan. Due to the loose pneumatic connection, the pitch on the exhaust fan blades was reduced to zero, causing low flow. Fifteen seconds after a low flow is sensed, the running fan should trip and the standby fan automatically start. However, the reactor building differential pressure will decrease due to decreased exhaust flow which can cause an isolation on low differential pressure after a simultaneous 15 second time delay. Since the time delays are identical, the ventilation system isolated before the standby fan could restore negative pressure.

Corrective Actions:

The Standby Equipment Compartment Exhaust Fan was placed in service, and a negative pressure in the reactor building was restored with the normal ventilation systems.

The pneumatic fitting on the 'B' fan pitch controller was tightened, the controller was adjusted and calibrated, and the fan was returned to service. All other pneumatic fittings on both the 'B' and the 'A' Reactor Enclosure Equipment Compartment Exhaust Fans were checked and found to be tight therefore this event is considered to be an isolated incident.

To prevent future occurrences of the initiation of a Reactor Enclosure HVAC isolation based on low differential pressure prior to the startup of the standby exhaust fan, the isolation logic for the differential pressure (dp) switch (time delay from low differential pressure signal to isolation) was increased to 100 seconds, which will provide sufficient time for the standby exhaust fan to restore the proper differential pressure in the event of primary exhaust fan failure.

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March 7, 1985

Docket No. 50-352

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

SUBJECT: Licensee Event Report
Limerick Generating Station - Unit 1

This LER concerns the automatic isolation of the reactor enclosure Heating, Ventilation and Air Conditioning system due to low differential pressure.

Reference:	Docket No. 50-352
Report Number:	85-023
Revision Number:	00
Event Date:	February 5, 1985
Report Date:	March 7, 1985
Facility:	Limerick Generating Station P.O. Box A, Sanatoga, PA 19464

This LER is being submitted pursuant to the requirements of 10 CFR 50.73(a)(2)(iv).

Very truly yours,

W. T. Ullrich
Superintendent
Nuclear Generation Division

cc: Dr. Thomas E. Murley, Administrator, Region I, USNRC
J. T. Wiggins, Senior Site Inspector
See Service List

IE22
1/1

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January 16, 1985