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)
Nine Mile Point Unit 2	0 5 0 0 0 410	1 OF 05

TITLE (4) Two Secondary Containment Isolations Result from a Jumper Being Grounded (Isolation #1) and a Procedure not Being Properly Performed (Isolation #2)

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)
											N/A	0 5 0 0 0
07	25	87	87	—	036	—	00	08	24	87	N/A	0 5 0 0 0

OPERATING MODE (9)	2	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	003	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	
	AREA CODE	
Robert G. Randall, Supervisor Technical Support	315	349-2445

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	

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)

On July 25, 1987 at 1038 with the reactor in Startup (Operational Condition 2) and at a power level of 3.6% rated thermal capacity, Nine Mile Point Unit 2 experienced a secondary containment isolation while performing a surveillance on the Reactor Building (RB) ventilation process radiation monitors. A second secondary containment isolation occurred at 1135 while trying to restore normal RB ventilation.

The RB Ventilation system was restored to normal at 1139, ending the event.

The probable root cause for the first event is personnel error. The root cause for the second event is a cognitive personnel error.

The corrective actions for this event are:

1. A Training Modification Recommendation has been initiated requesting discussion of this event in the applicable training programs.

2. This event will be included in the Operations Department Lessons Learned book.

3. The operating procedure for the RB Ventilation system has been revised.

4. A problem report has been submitted requesting an evaluation of alternatives to jumper installations.

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Nine Mile Point Unit 2	0 5 0 0 0 410	87	— 036	— 00	02 OF 05

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

I. DESCRIPTION OF EVENT

On July 25, 1987 at 1038 with the reactor in Startup (Operational Condition 2) and at a power level of 3.6% rated thermal capacity, Nine Mile Point Unit 2 (NMP2) experienced a secondary containment isolation while performing the monthly channel functional surveillance test on the Reactor Building (RB) ventilation process radiation monitors. At 1135 the same day another secondary containment isolation occurred while trying to restore normal RB ventilation.

The chronology for these two events is as follows:

1038: To prepare for the monthly surveillance on the RB ventilation process radiation monitors three jumpers were installed by an Instrument and Control (I&C) Technician in relay panel 2CEC*PNL861. (These jumpers ensure that three RB air operated dampers do not close during surveillance testing, initiating a secondary containment isolation.) During installation of one of the jumpers, the control power fuse to an RB ventilation exhaust damper blew, de-energizing that control circuit. As a result, the damper failed closed, tripping the exhaust fan, and a low flow signal was generated initiating the secondary containment isolation. Additionally, the RB Emergency Ventilation Unit Cooler 2HVR*UC413A automatically started as designed on the low flow signal.

Normally, an automatic initiation of the Standby Gas Treatment System (SBGT) would occur on a secondary containment isolation. But, this did not occur since the automatic start feature for SBGT Train B was bypassed as required for the surveillance test and SBGT Train A was already in operation taking suction from the primary containment.

Between 1038 and 1135: NMP2 Operations replaced the blown control power fuse and attempted to restore normal RB ventilation.

1134: An RB ventilation exhaust fan was started by a Niagara Mohawk (NMPC) non-licensed operator stationed at the local control panel.

1135: An NMPC licensed control room operator noticed that the vacuum in the RB was approaching the isolation setpoint, so he instructed the operator at the local control panel to start an RB ventilation supply fan in an attempt to mitigate this situation. A supply fan was started, but due to the slow opening time of the supply dampers the RB vacuum continued to increase. The vacuum in the RB reached the trip setpoint for the exhaust fan. The exhaust fan tripped and the resultant low flow condition initiated another secondary containment isolation.

1139: The event was ended when NMP2 Operations was successful in restoring the RB Ventilation system to normal.

There were no other inoperable systems which contributed to this event.

II. CAUSE OF EVENT

The probable root cause for the first event is personnel error. The root cause for the second event is a cognitive personnel error.

The first secondary containment isolation was caused by a blown control power fuse. The most probable root cause for the blown control power fuse is a personnel error that caused a jumper to be inadvertently grounded during installation. The I&C technician doing the jumper placement was aware of previous problems concerning jumper installations, and claimed he exercised caution when installing the jumpers. Additionally, the technician stated he did not (to the best of his knowledge) inadvertently ground a jumper and did not notice any arcing which may have resulted if a jumper was grounded. But, it is possible that the jumper was inadvertently grounded during installation, causing the control power fuse to blow. This is considered the most probable cause for this event since a circuit checkout did not reveal any abnormal characteristics associated with this particular control circuit.

The second secondary containment isolation occurred while operations was attempting to restore the RB Ventilation system to normal. The cause for this event is attributed to a cognitive personnel error. The operating procedure for the RB Ventilation system specifies that both the supply and exhaust fan should be started simultaneously. The operator performing the system startup at the local control panel failed to notice this precaution in the procedure, so only the exhaust fan was started. He did not start the supply fan until he was directed to by the control room operator. Therefore, during the time where only the exhaust fan was running, air was being forced from the RB creating a vacuum. The supply fan was finally started but it could not attain its normal operating parameters before the exhaust fan tripped on a high RB vacuum, which initiated the second secondary containment isolation.

If both fans were started simultaneously as specified by the procedure, this second isolation could have been avoided.

A contributing factor to this second event is a human factors related deficiency in the RB ventilation operating procedure. The statement directing both fans to be started simultaneously is part of a complex note discussing other operating aspects for these fans. This statement can be overlooked if this note is not read carefully. This second event might have been avoided if the statement to simultaneously start both fans was more apparent to the operator.

III. ANALYSIS OF EVENT

An undesirable challenge to a plant Engineered Safety Feature (ESF) system occurred due to the inadvertently grounded jumper. However, a secondary containment isolation is a conservative ESF response, and does not have an adverse impact on plant or public safety.

A shorted jumper can be postulated to occur during any surveillance procedure or plant condition. This can lead to one of two situations described below:

A. A shorted jumper can render a single safety system inoperable. In accordance with 10CFR50 Appendix A, Nine Mile Point Unit 2 is designed to withstand a single component or system failure. Hence, this fault would not place the plant in an unanalyzed condition.

B. A shorted jumper can lead to a spurious initiation of a plant safety system. In NMP2 Final Safety Analysis Report (FSAR) Chapter 15 the events of anticipated process disturbances and postulated component failures are examined to determine their consequences and to evaluate the capability built into the plant to control or accommodate such failures and events.

FSAR Chapter 15, Section 15.0.3.2.1 specifically addresses the consequences of single failures or operator errors.

The total elapsed time for this event is approximately 61 minutes.

IV. CORRECTIVE ACTIONS

1. A Training Modification Recommendation has been initiated requesting discussion of this event in I&C Technician training and NMP2 Operator training.

2. A summary of the event will be included in the NMP2 Operations Department Lessons Learned book. This book is required reading for all Operations personnel.

3. The operating procedure for the RB Ventilation system has been revised to ensure (during system startup) the exhaust and supply fans are started at the same time. The precaution, pertaining to this system operation, has been relocated and emphasized to ensure it is plainly visible to the personnel performing this portion of the procedure. This procedure revision should prevent future containment isolations due to the failure to start both the supply and exhaust fans simultaneously.

4. A Problem Report (PR) has been submitted to the Niagara Mohawk Engineering Department. This PR requests an evaluation of other alternatives to the jumper installations required to perform the monthly surveillance for the RB ventilation process radiation monitors. This corrective action intends to avoid future ESF actuations that may occur due to these particular jumper installations by finding a positive alternative to them.

V. ADDITIONAL INFORMATION

There are two other events discussed in LER's 86-09 and 87-03 which are superficially similar to the first secondary containment isolation event discussed in this report.

The events discussed in LER's 86-09 and 87-03 also involved automatic ESF actuations due to jumpers being inadvertently grounded. But, these events were a result of a deficient jumper configuration which has since been replaced, whereas, the probable cause for the event discussed in this report is a personnel error involving the jumper installation.

LER 86-12 Revision 1 discusses two events (similar to the second secondary containment isolation event described in this report) where two ESF actuations occurred while Operations was attempting to restore the RB Ventilation system to normal. All these events were caused by the procedure not being properly performed. The events discussed in LER 86-12 Revision 1 were attributed to lack of training and unfamiliarity of the involved personnel with the RB Ventilation system, whereas, the event discussed in this report was due to a cognitive personnel error.

Identification of Components Referred to in this LER

Component	IEEE 803 EIIS Funct	IEEE 805 System ID
Radiation Monitor	MON	VA
Damper	DMP	VA
Fuse	FU	VA
Fan	FAN	VA
Relay Panel	PL	JE
Reactor Building Ventilation System	N/A	VA
Standby Gas Treatment System	N/A	BH
Secondary Containment Isolation System	N/A	JE
Reactor Building	N/A	NG

NMP26442

NIAGARA MOHAWK POWER CORPORATION

NIAGARA MOHAWK

301 PLAINFIELD ROAD
SYRACUSE, NY 13212

THOMAS E. LEMPGES
VICE PRESIDENT—NUCLEAR GENERATION

August 24, 1987

United States Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

RE: Docket No. 50-410
LER 87-36

Gentlemen:

In accordance with 10 CFR 50.73, we hereby submit the following Licensee Event Report:

LER 87-36 Is being submitted in accordance with 10 CFR 50.73 (a) (2) (iv), "Any event or condition that resulted in manual or automatic actuation of any Engineered Safety Feature (ESF), including the Reactor Protection System (RPS). However, actuation of an ESF, including the RPS, that resulted from and was part of the preplanned sequence during testing or reactor operation need not be reported."

A 10 CFR 50.72 report for these events was made at 1405 hours on July 25, 1987.

This report was completed in the format designated in NUREG-1022, Supplement No. 2, dated September 1985.

Very truly yours,

Thomas E. Lempges

Thomas E. Lempges
Vice President
Nuclear Generation

TEL/POB/mjd

Attachments

cc: Regional Administrator, Region 1
Sr. Resident Inspector, W. A. Cook

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