NRC Form 366 (9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Nine Mile Point Unit 2	0 5 0 0 0 4 1 0	1 OF 0 4

TITLE (4)

Emergency Safety Feature Actuation Due To Shorted Jumper

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 1	1 6	8 7	8 7	— 0 0 3	— 0 1		0 7	0 7	8 7	N/A	0 5 0 0 0
										N/A	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 1 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
Robert G. Randall, Supervisor Technical Support	AREA CODE 3 1 5 — 3 4 9 - 2 4 4 5

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 January 16, 1987 Nine Mile Point Unit 2 was at 0% power with the mode switch in shutdown. Surveillance procedure N2-RSP-RMS-M107, "Channel Functional Test of the Reactor Building Below the Refuel Floor Process Radiation Monitors" was conducted to comply with Technical Specifications. In accordance with procedure, jumpers were installed to prevent reactor building intake and exhaust dampers from closing during the test. At approximately 1120, a single jumper fell off and shorted to ground causing reactor building ventilation exhaust damper 2HVR*AOD10A to close. The closed damper prohibited flow initiating reactor building emergency recirculation unit 2HVR*UC413B on low reactor building exhaust flow. Reactor building ventilation was returned to normal at approximately 1211.

CORRECTIVE ACTION

Engineering has recommended the addition of approved stake-ons to terminal blocks for a more secure jumper installation. The installation of stake-ons will be directed by the Instrument & Control department.

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

I. DESCRIPTION OF EVENT

On January 16, 1987 Nine Mile Point Unit 2 was at 0% power with the mode switch in shutdown. Surveillance procedure N2-RSP-RMS-M107, "Channel Functional Test of the Reactor Building Below the Refuel Floor Process Radiation Monitors" was conducted to comply with Technical Specifications. The test performs a channel functional test of reactor building process radiation monitors. This is accomplished by verifying the energizing/deenergizing of primary relays for the automatic trip function.

Per procedure, three jumpers were placed across specified terminals at panel 2CEC*PNL859 by Instrument & Control (I&C) Technicians. One of the jumpers, placed from relay WY terminals M3 to R3, fell off at terminal R3 at approximately 1120. The jumper shorted to ground, blowing fuse F3 in circuit 2HVRA89, and subsequently deenergizing solenoid valves 2HVR*SOVY10A and 2HVR*SOVX10A. Deenergize-to-close damper 2HVR*AOD10A then shut interrupting reactor building above refuel floor exhaust flow. As designed, reactor building emergency recirculating unit 2HVR*UC413B auto started due to low reactor building ventilation exhaust flow.

Standby Gas Treatment discharge fans 2GTS*FN1A and FN1B and recirculating unit cooler fan 2HVR*UC413A did not initiate having been placed in pull-to-lock. At approximately 1152 recirculating unit 2HVR*UC413B was secured and the reactor building isolation signal was reset. At approximately 1211 normal reactor building ventilation was restored.

II. CAUSE OF EVENT

Difficulty in obtaining a tight grip with the jumper alligator clip on the head of a termination screw is considered the primary cause of the event. Procedure N2-RSP-RMS-M107 contains a statement cautioning that "accidentally shorting a terminal to ground will cause the associated system to trip". The procedure, therefore, included adequate warning to these consequences. A secondary cause is technician error. The Instrument and Control technician, cognizant of this and the difficulty in obtaining a tight grip, should have executed more caution in affecting a secure jumper attachment.

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

III. ANALYSIS OF EVENT

An undesireable challenge to a plant Emergency Safety Feature (ESF) system occurred due to a shorted jumper. There were, however, no adverse safety consequences as a result of this event.

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

A. A shorted or open 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 or open jumper can lead to a spurious initiation of a plant safety system. In FSAR chapter 15 the effects 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.

IV. CORRECTIVE ACTION

A near identical event occurred on November 24, 1986 and was submitted as LER 86-09. Corrective Action included discussing LER 86-09 in the instrument and control training program (this technician was aware of the event that resulted in LER 86-09). A commitment to evaluate alternative methods of jumper installation, other than alligator clip to termination screw, was also a corrective action.

NOTE: LER 86-09 occurred while performing the same surveillance test that was performed in LER 87-03.

The Engineering evaluation of alternative jumpering methods is now complete. They are recommending the use of AMP Nuclear "PIDG" lugs. These lugs will provide a test connection point at termination screws in the form of a "barrel" type connector. Jumpers will be equipped with pins which "plug" into the connector barrel providing a secure fastening. The AMP Nuclear "PIDG" lugs are approved for all applications including Class 1E terminations.

Initial corrective action was to install the above mentioned lugs at the jumper termination screws required to perform procedures N2-RSP-RMS-M107 and N2-RSP-RMS-M108. (per Work Request 115631)

Niagara Mohawk realizes the ramifications of initiating an ESF system. To prevent recurrence of a similar event of this type we have initiated positive measures. Stake-on type termination test lugs will be installed as part of normal plant surveillances as routinely directed by the Instrument and Control department (where the procedures require jumpering only). The status of the plant, and/or system configuration, might be a limiting factor in the installation of the test lugs. Therefore, it is difficult to provide a firm estimated completion date, but these lugs should all be installed after several series of surveillances. As a worst case bases these test lugs should be installed prior to the completion of the mid-cycle outage scheduled after commerical operation.

V. ADDITIONAL INFORMATION

Identification of Components Referred to in this LER

Component	IEEE 803 EIIS Funct	IEEE 805 System ID
Reactor Building Ventilation Dampers (HVR)	DMP	VA
Reactor Building Unit Cooler (HVR)	LLR	VA
Reactor Building Radiation Monitor (HVR)	MON	IK
Relay Room Terminal Block	MRED	EI

LER 86-09 is the only Licensee Event Report similar to LER 87-03 which had previously occurred.