

REGUL INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8705140357 DOC. DATE: 87/05/08 NOTARIZED: NO DOCKET #
 FACIL: 50-410 Nine Mile Point Nuclear Station, Unit 2, Niagara Moha 05000410
 AUTH. NAME AUTHOR AFFILIATION
 RANDALL, R. G. Niagara Mohawk Power Corp.
 LEMPGES, T. E. Niagara Mohawk Power Corp.
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 87-013-01: on 870209, during cold shutdown, momentary power loss to div 2 600-volt load ctr resulted in secondary containment isolation. Caused by personnel error. Training mod recommended. W/870508 ltr.

DISTRIBUTION CODE: IE22D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 7
 TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

NOTES:

	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL		RECIPIENT ID CODE/NAME	COPIES LTTR ENCL
	PD1-1 LA	1 1		PD1-1 PD	1 1
	NEIGHBORS, D	1 1		MINER, S	1 1
INTERNAL:	ACRS MICHELSON	1 1		ACRS MOELLER	2 2
	AEOD/DOA	1 1		AEOD/DSP/ROAB	2 2
	AEOD/DSP/TPAB	1 1		DEDRO	1 1
	NRR/DEST/ADE	1 0		NRR/DEST/ADS	1 0
	NRR/DEST/CEB	1 1		NRR/DEST/ELB	1 1
	NRR/DEST/ICSB	1 1		NRR/DEST/MEB	1 1
	NRR/DEST/MTB	1 1		NRR/DEST/PSB	1 1
	NRR/DEST/RSB	1 1		NRR/DEST/SGB	1 1
	NRR/DLPQ/HFB	1 1		NRR/DLPQ/QAB	1 1
	NRR/DOEA/EAB	1 1		NRR/DREP/EPB	1 1
	NRR/DREP/RAB	1 1		NRR/DREP/RPB	2 2
	NRR/PMAS/ILRB	1 1		NRR/PMAS/PTSB	1 1
	<u>REG FILE</u> 02	1 1		RES SPEIS, T	1 1
	RGN1 FILE 01	1 1			
EXTERNAL:	EG&G GROH, M	5 5		H ST LOBBY WARD	1 1
	LPDR	1 1		NRC PDR	1 1
	NSIC HARRIS, J	1 1		NSIC MAYS, G	1 1

TOTAL NUMBER OF COPIES REQUIRED: LTIR 44 ENCL 42



LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Nine Mile Point Unit 2	0 5 0 0 0 4 1 1 0	1 OF 0 6

TITLE (4)

Engineered Safety Features Actuation due to Loss of Power to a Class 1E 600V Bus

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 9	8 7	8 7	0 1 3	0 1	0 5	0 8	8 7	N/A		0 5 0 0 0 0
									N/A		0 5 0 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)									
		20.402(b)	20.406(e)	X	80.73(a)(2)(iv)	73.71(b)					
		20.406(a)(1)(i)	80.36(a)(1)		80.73(a)(2)(v)	73.71(c)					
		20.406(a)(1)(ii)	80.36(a)(2)		80.73(a)(2)(vi)						
		20.406(a)(1)(iii)	80.73(a)(2)(i)		80.73(a)(2)(vii)(A)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)					
		20.406(a)(1)(iv)	80.73(a)(2)(ii)		80.73(a)(2)(vii)(B)						
POWER LEVEL (10)	0 0 0	20.406(a)(1)(v)	80.73(a)(2)(iii)		80.73(a)(2)(ix)						

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 NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS
X	E D	T I L I	G I 2 I 7 I 2	N					

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 fifteen single-space typewritten lines) (16)

While in cold shutdown on February 9, 1987 at 0444 hours, a momentary loss of power to the Division 2 600V emergency load center resulted in a secondary containment isolation and the automatic start of a control room ventilation special filter train and an emergency reactor building recirculation unit. Prior to the event, the load center was being supplied through its alternate supply breaker (abnormal lineup). A Niagara Mohawk licensed control room operator, responding to computer alarms indicating supply breakers had been realigned at the load center, momentarily opened the breaker that was supplying power in an attempt to realign the supply breakers. The root cause of this event is personnel error. Contributing factors were three burned out supply breaker indicator lights and an unexplained breaker repositioning.

Immediate corrective actions taken were to realign the load center through its normal supply breaker, to return to normal all affected systems, and to replace the burned out indicator lights by approximately 0515 hours. In addition, a Training Modification Recommendation has been submitted to remind Niagara Mohawk operators via training to always properly assess plant conditions before taking action. After thorough investigation, the root cause for the breaker repositioning could not be determined.

8705140357 870508
PDR ADDCK 05000410
S PDR

JE22 1/1



LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO 3150-3104

EXPIRES 8/31 88

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 4 1 0	8 7	— 0 1 3	— 0 1	0 2	OF	0 6

TEXT (If more space is required, use additional NRC Form 368A's) (17)

I. DESCRIPTION OF EVENT

While in cold shutdown on February 9, 1987 at 0444 hours, a momentary loss of power to the Division 2 600V emergency load center resulted in a secondary containment isolation and the automatic start of a control room ventilation special filter train and an emergency reactor building recirculation unit. In addition, the running spent fuel pool cooling pump tripped on low flow due to its discharge valve failing closed on loss of power. The automatic actuation of these Engineered Safety Features (ESF) systems was due to personnel error. Prior to the event, the emergency load center was in an abnormal lineup being fed through its alternate supply breaker. At 0442 emergency load center status change computer points printed out in the control room, indicating that the normal supply breaker was closed and the alternate supply breaker was open. In response to the status computer points, the Niagara Mohawk licensed control room operator proceeded to verify breaker positions at the control panel. The operator found both normal supply breaker indicator lights out and the alternate supply breaker green indicator light lit (indicating breaker open). Three supply breaker indicator lights had burned out. This caused the operator to misread the breaker indication and momentarily open the breaker that was supplying power (normal supply), while attempting to realign the supply breakers.

Immediate corrective actions taken were to realign the emergency load center through its normal supply breaker and to return to normal all affected systems (see Attachment 1 for loads). This was accomplished by approximately 0515 hours. In addition, the burned out indicator lights were replaced.

It should be noted that control board indicator lights were checked during that shift and prior to the event.

II. CAUSE OF EVENT

The root cause for a momentary loss of power to the emergency load center and subsequent ESF actuations is cognitive personnel error. The Niagara Mohawk licensed control room operator responded to the computer alarms and panel indications without properly assessing power supply conditions. However, three burned out supply breaker indication lights and the unexplained breaker repositioning contributed to the personnel error.

The root cause for the breaker repositioning could not be determined. After thorough investigation, two possible causes were considered. However, the available evidence was insufficient to positively identify a root cause. The following is a discussion of each possible cause and the results of the investigation.

Prior to the event, the following conditions existed:

1. Since November 7, 1986 the emergency load center was in an alternate power supply lineup, as documented on each weekly operations surveillance check sheet.



LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/88

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 4 1 0	8 7	— 0 1 3	— 0 1	0 3	OF	0 6

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

2. Within one hour of the event, the control room operator had noted the breaker lineup on the control room panel as follows:

The normal supply breaker control switch position was normal-after-trip with the green indication light lit. The alternate supply breaker control switch position was normal-after-close with the red indication light lit.

3. No work was being performed at the load center or on other related equipment.
4. On February 9, 1987 at 0340 hours, the weekly surveillance that verifies power supply lineups had commenced.

Initially, the breakers and the DC control circuit were checked to identify any malfunction that may have caused the three indicator lights to burn out and the breakers to reposition. No malfunctions were identified.

Therefore, the first possible cause considered after initial investigation, was that someone had repositioned the breakers from the load center. This was supported by the computer alarm printout, the breaker control switch positions noted by the control room operator after receipt of the computer alarms, and the knowledge that the NMPC licensed operator performing the weekly surveillance had entered the load center room during the time interval of the event. Additional evidence to support this possible cause is that the control circuit logic design for these breakers does not allow the transfer of load without power interruption from the control room. Only one breaker may be closed at a time. However, the breakers may be transferred without power interruption locally, using the manual close lever on these electrically operated, drawout type circuit breakers.

Security computer area access printouts for that time interval were obtained and showed the NMPC licensed operator in the room when the control room operator received the alarms. However, the NMPC licensed operator stated he had not repositioned the breakers during the surveillance nor had he observed any one else doing it. In addition, a time difference exists between the plant and security computer clocks. Although the magnitude of the time difference could not be verified for the day of the event, its existence prevents determining if anyone may have been in the room during the event. Therefore, available evidence was not sufficient to establish this possible cause as the root cause.

The other possible cause for the apparent breaker repositioning was the malfunction of the optical isolators which connect the breaker auxiliary contacts to the plant computer. Due to their low pick-up voltage, optical isolators have been known to spuriously trip to generate false computer alarms when voltage is induced from nearby electrical equipment or operation of a radio device. However, this possible cause is only valid with the assumption that prior to the event the load center had already been aligned through its normal supply breaker and that the control switch positions and indicator lights noted by the control room operator prior to and during the event were inaccurate. However, weekly surveillance checklists, control room logs and plant computer historical data confirm the control room operator's description of the load center being in the alternate supply



LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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 4 1 0	8 7	— 0 1 3	— 0 1	0 4	OF	6

TEXT (If more space is required, use additional NRC Form 365A's) (17)

breaker lineup prior to the receipt of the computer alarms. This evidence rules out optical isolator malfunctions as the cause for breaker repositioning.

III. ANALYSIS OF EVENT

No adverse safety consequences exist for this event, since the unit is in cold shutdown and has never gone critical. ESF systems such as secondary containment isolation, control room ventilation special filter train, and emergency reactor building recirculation units actuated as designed on a loss of power. The other two divisional power supplies remained fully operable during the event.

During all operating conditions, the emergency AC power distribution system provides power for operation of the plant emergency systems and Emergency Core Cooling Systems during and following the emergency shutdown of the reactor in the event of a Loss of Cooling Accident (LOCA) or Loss of Offsite Power (LOOP). This system is a reliable source of AC power, supplying all safety related loads, via three independent divisions normally energized from offsite sources and with standby diesel generators as a backup source (see Attachment 1). The emergency load centers have two possible supply paths through either transformer, because each transformer is sized for 100% load. This improves the reliability.

IV. CORRECTIVE ACTIONS

Extensive circuit checkouts were performed to determine any possible malfunctions that could have caused breaker transfers, optical isolator malfunctions, and burned out light bulbs. No malfunctions were identified.

A Training Modification Recommendation has been submitted to Operations Training to discuss this incident with all Niagara Mohawk operators, reminding them to always properly assess plant conditions before taking action.

Consideration is being given to synchronize the plant and security computer time clocks to a standard time clock to aid in root cause analysis of future events such as this.

A memorandum will be issued to all personnel stating that investigation of abnormal events must be initiated as soon as possible after the event in order to adequately assess and determine the root cause.



LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/88

FACILITY NAME (1) Nine Mile Point Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 4 1 0	LER NUMBER (8)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		8 7 —	0 1 3	—	0 1	0 5	OF 6

TEXT (If more space is required, use additional NRC Form 368A's) (17)

V. ADDITIONAL INFORMATION

A. Identification of Components Referred to in this LER

Component	IEEE 803 EIIS Funct	IEEE 805 System ID
Secondary Containment Isolation System/ Emergency Recirculation System	N/A	VC
Control Room Ventilation System (HVC)	N/A	VI
600 V Emergency AC Distribution System (EJS)	N/A	ED
ITE Brown Boveri Type K3000S 600V Normal/ Alternate Supply Breakers	52	ED

B. Previous Similar Events - None



LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED CASE NO. 3192-0104

DATE: 6/21/82

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (3)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
Nine Mile Point Unit 2	050004110	87	013	01	6	OF	06

TEXT (If more space is required, use additional text pages 256A-1 (17))

Attachment 1

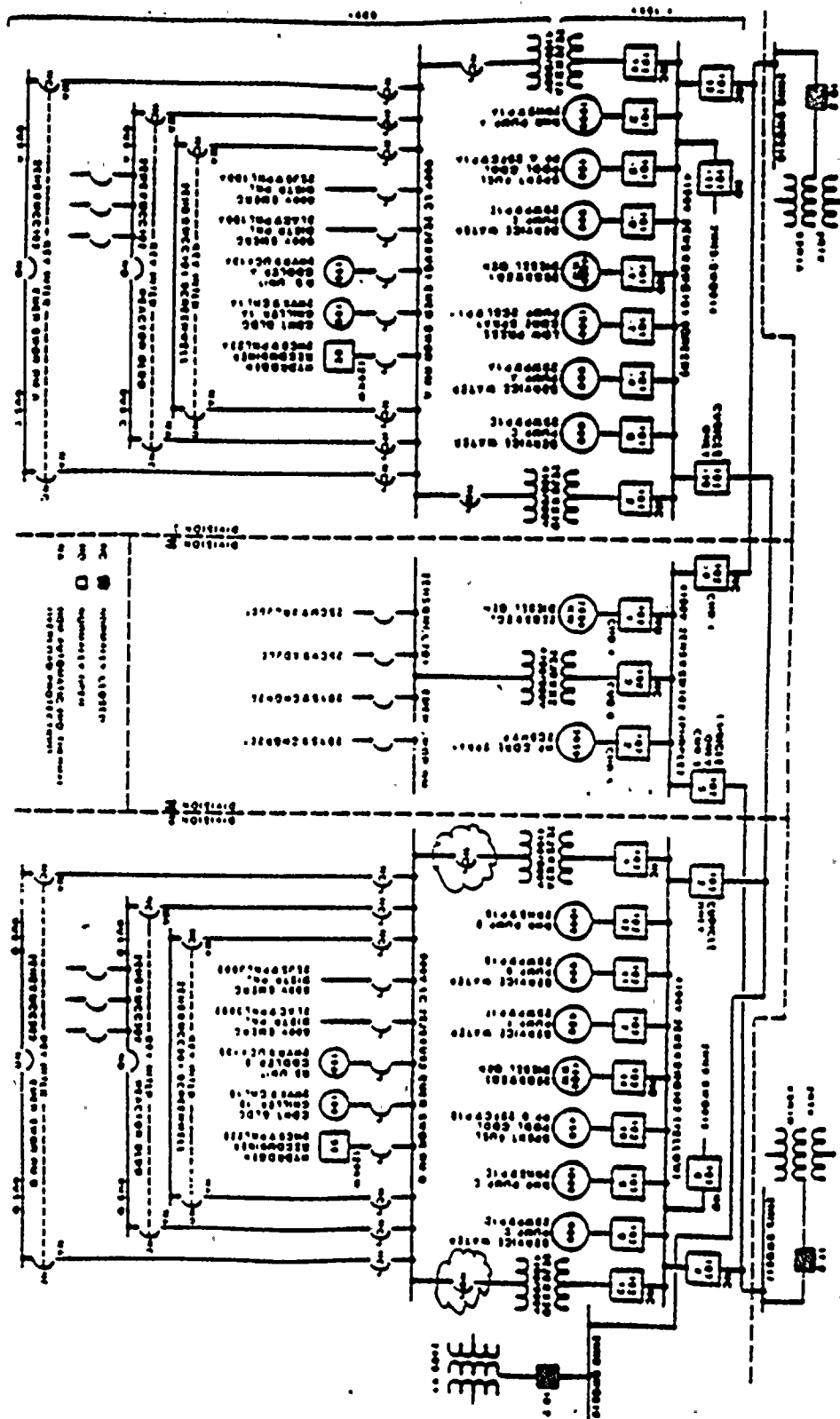
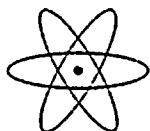



Figure 1 Rev. 0
Title:
EMERGENCY AC
POWER DISTRIBUTION





NIAGARA MOHAWK POWER CORPORATION

NIAGARA  MOHAWK301 PLAINFIELD ROAD
SYRACUSE, NY 13212THOMAS E. LEMPGES
VICE PRESIDENT—NUCLEAR GENERATION

May 8, 1987

United States Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555RE: Docket No. 50-410
LER 87-13, Supplement 1

Gentlemen:

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

LER 87-13 Supplement 1 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 report was made at 0840 hours on February 9, 1987.

A supplemental report is being submitted to present the results of the root cause analysis described in the original report.

This report was completed in the format designated in NUREG-1022, Supplement 2, dated September 1985.

Very truly yours,

Thomas E. Lempges
Vice President
Nuclear Generation

TEL/PB/mjd

Attachments

cc: Regional Administrator, Region 1
Sr. Resident Inspector, W. A. CookIE22
11



1