

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:9503210183 DOC.DATE: 95/03/14 NOTARIZED: NO DOCKET #
 FACIL:50-244 Robert Emmet Ginna Nuclear Plant, Unit 1, Rochester G 05000244
 AUTH.NAME AUTHOR AFFILIATION
 MARTIN,J.T. Rochester Gas & Electric Corp.
 MECREDY,R.C. Rochester Gas & Electric Corp.
 RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 95-002-00:on 950212,concurrent indication of individual CR position briefly unavailable.Caused by short circuit.
 Repair of short circuit completed.W/950314 ltr.

DISTRIBUTION CODE: IE22T COPIES RECEIVED:LTR 1 ENCL 1 SIZE: 15
 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

NOTES:License Exp date in accordance with 10CFR2,2.109(9/19/72). 05000244

RECIPIENT ID CODE/NAME		COPIES LTTR ENCL		RECIPIENT ID CODE/NAME		COPIES LTTR ENCL	
PD1-3 PD		1	1	JOHNSON,A		1	1
INTERNAL: AEOD/SPD/RAB		2	2	AEOD/SPD/RRAB		1	1
<u>FILE CENTER</u> 02		1	1	NRR/DE/ECGB		1	1
NRR/DE/EELB		1	1	NRR/DE/EMEB		1	1
NRR/DISP/PIPB		1	1	NRR/DOPS/OECB		1	1
NRR/DRCH/HHFB		1	1	NRR/DRCH/HICB		1	1
NRR/DRCH/HOLB		1	1	NRR/DRSS/PRPB		2	2
NRR/DSSA/SPLB		1	1	NRR/DSSA/SRXB		1	1
RES/DSIR/EIB		1	1	RGN1 FILE 01		1	1
EXTERNAL: L ST LOBBY WARD		1	1	LITCO BRYCE,J H		2	2
NOAC MURPHY,G.A		1	1	NOAC POORE,W.		1	1
NRC PDR		1	1	NUDOCS FULL TXT		1	1

NOTE TO ALL "RIDS" RECIPIENTS:
 PLEASE HELP US TO REDUCE WASTE! CONTACT THE DOCUMENT CONTROL
 DESK, ROOM P1-37 (EXT. 504-2083) TO ELIMINATE YOUR NAME FROM
 DISTRIBUTION LISTS FOR DOCUMENTS YOU DON'T NEED!

FULL TEXT CONVERSION REQUIRED
 TOTAL NUMBER OF COPIES REQUIRED: LTTR 27 ENCL 27

AD4

P
R
I
O
R
I
T
Y

1

C
C
L
M
E
N
T



ROCHESTER GAS AND ELECTRIC CORPORATION • 89 EAST AVENUE, ROCHESTER, N.Y. 14649-0001



AREA CODE 716 546-2700

ROBERT C. MECREDY
Vice President
Nuclear Operations

March 14, 1995

U.S. Nuclear Regulatory Commission
Document Control Desk
Attn: Allen R. Johnson
PWR Project Directorate I-3
Washington, D.C. 20555

Subject: LER 95-002, Loss of Individual Rod Position Indication, Due to Electrical Short Circuit, Causes a Condition Prohibited by Plant Technical Specifications
R.E. Ginna Nuclear Power Plant
Docket No. 50-244

In accordance with 10 CFR 50.73, Licensee Event Report System, item (a) (2) (i) (B), which requires a report of, "any operation or condition prohibited by the plant's Technical Specifications", the attached Licensee Event Report LER 95-002 is hereby submitted.

This event has in no way affected the public's health and safety.

Very truly yours,


Robert C. Mecredy

xc: U.S. Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia, PA 19406

Ginna USNRC Senior Resident Inspector

210176

9503210183 950314
PDR ADDEK 05000244
S PDR

IFER
11

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 (MNB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) R.E. Ginna Nuclear Power Plant

DOCKET NUMBER (2)
05000244PAGE (3)
1 OF 14

TITLE (4) Loss of Individual Rod Position Indication, Due to Electrical Short Circuit, Causes a Condition Prohibited by Plant Technical Specifications

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 NAME	DOCKET NUMBER
02	12	95	95	--002--	00	03	14	95	FACILITY NAME	DOCKET NUMBER
OPERATING MODE (9)		N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
POWER LEVEL (10)		098	20.402(b)			20.405(c)			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)		X	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 John T. St. Martin - Technical Assistant

TELEPHONE NUMBER (Include Area Code)
(315) 524-4446

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	AA	JX	E232	Y						

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 February 12, 1995, at approximately 2154 EST, with the plant at approximately 98% steady state reactor power, concurrent indication of individual control rod position was briefly unavailable from both the Main Control Board display of the Microprocessor Rod Position Indication and the Plant Process Computer System. This condition is not permitted by Technical Specification 3.10.5 and required entry into Technical Specification 3.0.1.

Immediate corrective action was to restore control rod indication to the Plant Process Computer System.

The underlying cause of concurrently unavailable rod position indication was a short circuit to ground in one subsystem of the Microprocessor Rod Position Indication system. This event is NUREG-1022 Cause Code (B).

Corrective action to preclude repetition is outlined in Section V.B.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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 (MNB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)		DOCKET NUMBER (2)		LER NUMBER (6)			PAGE (3)
R.E. Ginna Nuclear Power Plant		05000244		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 14
				95	-- 002 --	00	

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

I. PRE-EVENT PLANT CONDITIONS:

Indication of individual control rod position is normally available to the Control Room operators from two sources. One is available on the Main Control Board (MCB) from one subsystem of the Microprocessor Rod Position Indication (MRPI) system. The other is available on the Plant Process Computer System (PPCS) from the other subsystem of MRPI. The MCB MRPI display is one of two means of complying with Ginna Technical Specifications for individual control rod position indication (RPI) - either MCB MRPI display or the PPCS RPI is acceptable. On February 12, 1995, the plant was at approximately 98% steady state reactor power. At approximately 1610 EST, the MCB MRPI display became inoperable, as evidenced by loss of this display and receipt of MCB Annunciator C-29, "MRPI SYSTEM FAILURE".

The Control Room operators responded to this event, and performed the appropriate actions of Alarm Reponse procedure AR-C-29, "MRPI SYSTEM FAILURE", and Abnormal Operating procedure AP-RCC.2, "RCC/RPI MALFUNCTION". To confirm the operability of the control rods and of the individual RPI on the PPCS, they performed the applicable steps of Periodic Test procedure PT-1 (Rod Control System). The Control Room operators notified higher supervision, the Instrument and Control (I&C) group, and the NRC Senior Resident Inspector of the problem. I&C personnel came in to troubleshoot and attempt to restore the MCB MRPI display to operable status. Troubleshooting by I&C identified that a DC circuit breaker in subsystem 1 of MRPI (which supplies the MCB MRPI display) was open, caused by a faulty power supply in the MRPI subsystem 1 cabinet. I&C technicians replaced the power supplies for subsystem 1 and, at the time of the event, were making preparations to return the MCB MRPI display to service. No other major activities were in progress.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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 (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)		DOCKET NUMBER (2)		LER NUMBER (6)			PAGE (3)
R.E. Ginna Nuclear Power Plant		05000244		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	3 OF 14
				95	-- 002 --	00	

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

II. DESCRIPTION OF EVENT:

A. DATES AND APPROXIMATE TIMES OF MAJOR OCCURRENCES:

1. February 12, 1995, 1610 EST: MCB MRPI indication is inoperable.
2. February 12, 1995, 2154 EST: I&C technician attempts to restore power to MRPI subsystem 1, causing unexpected loss of PPCS individual rod position indication. Event date and time.
3. February 12, 1995, 2154 EST: Discovery date and time.
4. February 12, 1995, 2157 EST: PPCS individual RPI is restored.
5. February 13, 1995, 1105 EST: During troubleshooting of MRPI, power is briefly cycled on to MRPI subsystem 1, causing loss of PPCS individual RPI for approximately two seconds.
6. February 13, 1995, 1109 EST: PPCS RPI is declared inoperable due to troubleshooting of MRPI. I&C technician attempts to restore power to MRPI subsystem 1, causing loss of PPCS RPI for approximately three minutes.
7. February 13, 1995, 1142 EST: At the completion of troubleshooting, the PPCS RPI is declared operable.
8. February 13, 1995, 1356 EST: PPCS RPI is declared inoperable due to troubleshooting of MRPI. I&C technician attempts to restore power to MRPI subsystem 1, causing loss of PPCS RPI for approximately seventeen seconds.
9. February 13, 1995, 1406 EST: At the completion of troubleshooting, the PPCS RPI is declared operable.
10. February 14, 1995, 1427 EST: MCB MRPI display is declared operable.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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 (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)		DOCKET NUMBER (2)		LER NUMBER (6)			PAGE (3)
R.E. Ginna Nuclear Power Plant		05000244		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	4 OF 14
				95	-- 002 --	00	

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

B. EVENT:

On February 12, 1995, at approximately 2154 EST, with the reactor at approximately 98% steady state reactor power and troubleshooting in progress per Maintenance Procedure M-51.14, "Microprocessor Rod Position Indication System (MRPI) Maintenance", I&C technicians attempted to power up subsystem 1 of MRPI (with the new power supplies installed) by closing the DC circuit breaker. Seeing no 12V/5V DC power indication, they depressed the "reset" pushbutton, as directed by M-51.14, and still saw no 12V/5V DC power indication. This manual reset unexpectedly caused a momentary loss of power to both subsystems of MRPI. At this time, the Control Room operators, who were closely monitoring the PPCS individual RPI, observed that the PPCS display became anomalous and unreliable. They immediately notified the I&C technicians to stop what they were doing to the MRPI system and to restore the PPCS individual RPI.

I&C technicians then opened the subsystem 1 DC circuit breaker, restoring normal indication to the PPCS. PPCS RPI had been unreliable for approximately two minutes and forty seconds. Further troubleshooting was suspended at the direction of the Shift Supervisor, and the Control Room operators performed a computer check of rod position. They also moved control rods to verify proper updating of rod position to the PPCS. Subsequently, the Shift Supervisor notified higher supervision and the NRC Senior Resident Inspector.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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 (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)		DOCKET NUMBER (2)		LER NUMBER (6)			PAGE (3)
R.E. Ginna Nuclear Power Plant		05000244		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	5 OF 14
				95	-- 002 --	00	

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

Operating without indication of individual control rod position was a condition not permitted by Technical Specifications 3.10.5.1 and 3.10.5.2, which state in part:

3.10.5.1, "While critical, the rod position indication system and the step counters shall be operable and capable of determining the control rod positions within +/- 12 steps."

3.10.5.2, "With a maximum of one rod position indication per bank inoperable..."

The concurrent loss of rod position indication from both the MCB MRPI display and PPCS RPI placed the plant into Technical Specification 3.0.1, which states, "In the event a Limiting Condition for Operation and/or associated action requirements cannot be satisfied because of circumstances in excess of those addressed in the specification, within 1 hour action shall be initiated ..." The PPCS RPI was restored and verified to be operable within a few minutes, so no other actions were required by Technical Specifications.

The following morning (February 13), the situation was evaluated by plant management, and further troubleshooting was authorized. As part of the troubleshooting, I&C had already determined that the 15.6 VDC power supply in MRPI subsystem 1 was faulty, due to a failed internal resistor. Therefore, troubleshooting shifted to the common electrical loads connected to the other power supply, a 12V/5V DC power supply. I&C removed circuit boards in subsystem 1 that were common to both the 12VDC and 5VDC power supplies.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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 (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)		DOCKET NUMBER (2)		LER NUMBER (6)			PAGE (3)
R.E. Ginna Nuclear Power Plant		05000244		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	6 OF 14
				95	-- 002 --	00	

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

I&C closed the DC circuit breaker for subsystem 1 in another attempt to power up the subsystem, at approximately 1106 EST on February 13, 1995. I&C observed that there was still no indication of 12V/5V DC voltage, and immediately opened the breaker. For the brief time the breaker was closed (less than two seconds), PPCS RPI was unreliable, placing the plant into Technical Specification 3.0.1 for an instant.

I&C removed other selected circuit boards for subsystem 1, and at approximately 1110 EST, I&C again closed the breaker to determine if these additional actions restored power to the subsystem. This time, there was indication of 5VDC voltage, but still no 12VDC voltage. While I&C observed the situation, the same anomalous indications were present on the PPCS RPI. I&C opened the DC breaker at approximately 1113 EST on February 13, 1995. The 12V/5V DC power supply in MRPI subsystem 2 had tripped open during this activity. I&C reinserted the circuit boards, and cycled AC power for MRPI subsystem 2 to restore PPCS RPI.

The Control Room operators declared the PPCS RPI inoperable at the onset of anomalous PPCS indications. The actual PPCS RPI was restored within three minutes, and the Control Room operators performed the applicable steps of PT-1, and formally declared the PPCS RPI operable at approximately 1142 EST. Thus, while PPCS RPI had actually been non-functional for less than three minutes, the plant had been in Technical Specification 3.0.1 for approximately thirty-two minutes.

The Plant Operations Review Committee (PORC) reviewed this event, and authorized additional troubleshooting. At approximately 1355 EST, after I&C had obtained some unexpected resistance readings in the negative 12VDC power supply of MRPI subsystem 1, I&C removed one video circuit board and attempted to power up subsystem 1. No voltage was indicated from either 12VDC or 5VDC, and again PPCS RPI became unreliable. I&C opened the breaker, restoring the PPCS RPI, which had been lost for approximately seventeen seconds. Again, the PPCS RPI was declared inoperable at the onset of the anomalous PPCS indications.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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 (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)		DOCKET NUMBER (2)		LER NUMBER (6)			PAGE (3)
R.E. Ginna Nuclear Power Plant		05000244		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	7 OF 14
				95	-- 002 --	00	

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

The Shift Supervisor, with the concurrence of the Manager, Electrical & I&C Maintenance, then placed a "hold" tag on the AC power supply to MRPI subsystem 1, to ensure no further loss of PPCS RPI. The Control Room operators performed the applicable steps of PT-1, and formally declared the PPCS RPI operable at approximately 1406 EST. Thus, while PPCS RPI had actually been non-functional for less than seventeen seconds, the plant had been in Technical Specification 3.0.1 for approximately ten minutes.

I&C personnel reviewed the status of troubleshooting with plant management, and further troubleshooting was deferred to the following day.

Throughout this event, compensatory operator actions had included hourly computer checks to verify the PPCS rod position was operable. At a PORC meeting, one of the topics of discussion was that the PPCS did not indicate all of the alarms that could be generated from the MRPI system, and which (if present) would be displayed on the MCB MRPI display. PORC directed that data communications checks be performed, by the use of a hand-held terminal which verifies the integrity of data in MRPI subsystem 2, independent of the PPCS. Control Room operators then substituted the periodic use of this terminal in lieu of the computer checks.

The next day (February 14), PORC and plant management authorized the resumption of troubleshooting, provided there was no attempt to restore power to MRPI subsystem 1. I&C de-terminated the wires from the back of the 12V/5V DC supply for subsystem 1. The wiring was verified by schematics, and resistance readings were taken at each terminal as the wires were removed. A short circuit from the negative 12VDC to ground was detected while taking these readings. While removing a mounting screw for the 12V/5V DC power supply, the short circuit to ground disappeared.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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 (MNB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)		DOCKET NUMBER (2)		LER NUMBER (6)			PAGE (3)
R.E. Ginna Nuclear Power Plant		05000244		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	8 OF 14
				95	-- 002 --	00	

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

The I&C technicians removed the shorted 12V/5V DC power supply, and reinstalled the original 12V/5V DC power supply (which had been removed on February 12 as part of the troubleshooting). Upon closer inspection of the shorted power supply, the I&C technicians discovered a nick in some insulation, which they concluded had been caused by the tightening of the mounting screw. The design of the power supply specifies that these mounting screws can penetrate up to 1/2 inch after tightening. This depth is sufficient to touch one electrical connection internally in the 12VDC power supply. Note that annual bench testing of the spare 12 VDC power supply (for in-storage maintenance) does not include mounting the power supply, so the impact of these screws is not evident.

I&C reinstalled the video circuit board. With authorization from the PORC and plant management, the "hold" tag on the AC power supply was removed. With AC power available and the non-shortcd power supply now installed, I&C verified that there were no short circuits in MRPI subsystem 1, and that there were proper voltage readings in the MRPI power supplies. The DC breaker was closed to restore power to MRPI subsystem 1, at approximately 1330 EST on February 14, 1995. This time power was actually restored, and the PPCS indication was not affected. The MCB MRPI display was also restored.

With the discovery of the short circuit in the 12V/5V DC power supply, the previous events could now be explained. The original failure was in the 15.6 VDC power supply, and was caused by a failed internal resistor. Both the 15.6 V and 12V/5V DC power supplies were replaced, as a troubleshooting expediency. However, the replacement 12V/5V DC power supply had an internal power supply wire routed so that, during installation, the mounting screw nicked the insulation, causing the short circuit to ground (which had not previously existed in the MRPI system). When MRPI subsystem 1 was deenergized, this short circuit had no effect on MRPI subsystem 2, which was supplying reliable rod position information to the PPCS. Thus, each time the subsystem 1 DC breaker was closed, this short circuit also affected subsystem 2, resulting in inadequate power being provided from subsystem 2 to the PPCS. This resulted in anomalous PPCS indication while the subsystem 1 DC breaker was closed.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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 (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3) u
R.E. Ginna Nuclear Power Plant	05000244	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	9 OF 14
		95	-- 002 --	00	

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

The Control Room operators performed the applicable steps of PT-1, and declared the MCB MRPI display operable at approximately 1427 EST on February 14, 1995.

C. INOPERABLE STRUCTURES, COMPONENTS, OR SYSTEMS THAT CONTRIBUTED TO THE EVENT:

The MCB MRPI display was out of service, with troubleshooting in progress, when PPCS RPI was lost each time the DC circuit breaker was closed. This resulted in momentary concurrent loss of all rod position indication in the Control Room.

D. OTHER SYSTEMS OR SECONDARY FUNCTIONS AFFECTED:

None

E. METHOD OF DISCOVERY:

The Control Room operators were monitoring PPCS RPI during each of the I&C troubleshooting activities while the MCB MRPI display was inoperable, and observed when PPCS RPI was affected by the troubleshooting.

F. OPERATOR ACTION:

For the loss of the MCB MRPI display (at 1610 EST on February 12, 1995), the Control Room operators responded to Annunciator C-29 and performed the appropriate actions of AR-C-29 and AP-RCC.2. They confirmed the operability of the control rods and the PPCS RPI by performing the applicable steps of PT-1. They notified I&C and higher supervision and the NRC Senior Resident Inspector.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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 (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)		DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
R.E. Ginna Nuclear Power Plant		05000244	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	10 OF 14
			95	-- 002 --	00	

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

For the first loss of the PPCS RPI (at 2154 EST on February 12, 1995), the Control Room operators immediately notified the I&C technicians to restore the PPCS RPI, performed a computer check of rod position, and moved control rods to verify proper updating of rod position to the PPCS. They recognized that Technical Specification 3.0.1 applied to this event, and notified higher supervision and the NRC Senior Resident Inspector.

During the time that the MCB MRPI display was inoperable, the Control Room operators routinely performed either computer checks (per System Operating procedure S-26.1, "Computer Program Check") to verify that the PPCS values from MRPI subsystem 2 were updating or utilized the hand-held terminal by a licensed operator. They also performed PT-1 on several occasions to confirm that PPCS data was being updated, after the restoration of PPCS RPI.

G. SAFETY SYSTEM RESPONSES:

None

III. CAUSE OF EVENT:

A. IMMEDIATE CAUSE:

The immediate cause of the failure to comply with TS 3.10.5 was the concurrent loss of both individual rod position indications systems, due to an earlier loss of the MCB MRPI display, coupled with the loss of PPCS RPI during troubleshooting of the MRPI system.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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 (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)		DOCKET NUMBER (2)		LER NUMBER (6)			PAGE (3)
R.E. Ginna Nuclear Power Plant		05000244		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	11 OF 14
				95	-- 002 --	00	

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

B. INTERMEDIATE CAUSE:

The intermediate cause of the loss of the MCB MRPI display was due to an open circuit breaker which supplies DC power to MRPI subsystem 1.

The intermediate cause of the loss of the PPCS RPI was inadequate power supplied to MRPI subsystem 2 (the unaffected subsystem) when the MRPI subsystem 1 DC circuit breaker was closed on four separate occasions. This occurred because of a short circuit to ground in the MRPI subsystem 1 negative 12VDC power supply. This ground caused current to be drawn from MRPI subsystem 2, resulting in the anomalous and unreliable PPCS RPI.

C. ROOT CAUSE:

The underlying cause of the open DC circuit breaker was determined to be a faulty 15.6 VDC relay power supply (due to a failed internal resistor), which caused the MRPI subsystem 1 DC circuit breaker to open.

The underlying cause of the short circuit to ground in subsystem 1 was the routing of an internal power supply wire, which allowed a mounting screw, when installed in accordance with the manufacturer's recommendations, to penetrate the insulation of this wire, causing the ground.

This event is NUREG-1022 Cause Code (B), "Design, Manufacturing, Construction / Installation."

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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 (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)		DOCKET NUMBER (2)		LER NUMBER (6)			PAGE (3)
R.E. Ginna Nuclear Power Plant		05000244		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	12 OF 14
				95	-- 002 --	00	

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

IV. ANALYSIS OF EVENT:

This event is reportable in accordance with 10 CFR 50.73, Licensee Event Report System, item (a) (2) (i) (B), which requires a report of, "any operation or condition prohibited by the plant's Technical Specifications". The concurrent loss of RPI from both the MCB MRPI display and the PPCS RPI is a condition prohibited by Technical Specification 3.10.5.

An assessment was performed considering both the safety consequences and implications of this event with the following results and conclusions:

There were no operational or safety consequences or implications attributed to the loss of all RPI because of the short duration of the loss (no more than two minutes and forty seconds at one time) and because the event was immediately apparent to the Control Room operators.

During this time, the plant was in a stable condition, with steady-state values of reactor power, reactor coolant system temperature and pressure, and quadrant power tilts. The control rod bank step counters were all operable and indicating that the demand position of the rods had not changed. The indications showed that the control rods did not misposition during any of the brief concurrent losses of both the MCB MRPI display and the PPCS RPI. When PPCS RPI was restored, control rods indicated the same positions, and no other parameters were changed.

During the brief concurrent losses of RPI, the rod bottom indications were also inoperable. However, if the reactor had tripped from power, additional indications would have confirmed reactor subcriticality, and the rod bottom function would have been restored upon restoration of the PPCS RPI.

Based on the above, it can be concluded that the public's health and safety was assured at all times.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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 (MN88 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
R.E. Ginna Nuclear Power Plant	05000244	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	13 OF 14
		95	-- 002 --	00	

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

V. CORRECTIVE ACTION:

A. ACTION TAKEN TO RETURN AFFECTED SYSTEMS TO PRE-EVENT NORMAL STATUS:

- The faulty 15.6 VDC power supply was replaced.
- The short-circuited 12V/5V DC power supply was replaced.

B. ACTION TAKEN OR PLANNED TO PREVENT RECURRENCE:

- The faulty 15.6 VDC power supply will be repaired before being returned to stock.
- The routing of the internal power supply wires for the 12V/5V DC power supply will be evaluated, to determine the optimum routing of these wires to avoid mounting screws.
- Procedure M-51.14 will be changed to include checking for the presence of short circuits, during replacement of power supplies for MRPI.
- DC power distribution for other systems will be reviewed to ensure that a faulted power supply would not affect independent subsystems.
- Industry Events training for I&C personnel will include the lessons learned from this event.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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 (MNB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
R.E. Ginna Nuclear Power Plant	05000244	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	14 OF 14
		95	-- 002 --	00	

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

VI. ADDITIONAL INFORMATION:

A. FAILED COMPONENTS:

The faulty 15.6 VDC power supply is a Model RS15N21, manufactured by the AC/DC Electronics division of Emerson Electric Co. The short-circuited 12V/5V DC power supply is a Model RT301-1, also manufactured by the AC/DC Electronics division of Emerson Electric Co.

B. PREVIOUS LERS ON SIMILAR EVENTS:

A similar LER event historical search was conducted with the following results: No documentation of similar LER events with the same root cause at Ginna Nuclear Power Plant could be identified.

C. SPECIAL COMMENTS:

None