

# ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9103260186 DOC. DATE: 91/03/18 NOTARIZED: NO DOCKET #  
 FACIL: 50-244 Robert Emmet Ginna Nuclear Plant, Unit 1, Rochester G 05000244  
 AUTH. NAME: BACKUS, W.H. AUTHOR AFFILIATION: Rochester Gas & Electric Corp.  
 MECREDY, R.C. Rochester Gas & Electric Corp.  
 RECIP. NAME: RECIPIENT AFFILIATION

SUBJECT: LER 91-001-00: on 910215, loss of safeguards bus during  
 Emergency Diesel Generator monthly load test. Caused by  
 supply breakers tripping. Bus 18, emergency diesel generator  
 1A & output breaker inspected. W/910318 ltr.

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 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

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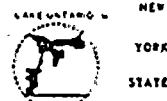




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AREA CODE 716 546-2700



March 18, 1991

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

Subject: LER 91-001, Loss of Safeguards Bus During Emergency Diesel Generator Monthly Load Test, Due To Supply Breakers Tripping, Causes A Condition Prohibited By The 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 prohibited by the Plant's Technical Specifications", the attached Licensee Event Report LER 91-001 is hereby submitted.

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

Very truly yours,

*Robert C. Mecredy*  
Robert C. Mecredy

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

Ginna USNRC Senior Resident Inspector

*Cert No.  
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S. PDR



## LICENSEE EVENT REPORT (LER)

APPROVED OMB NO. 3180-0104  
EXPIRES - 8/31/85

FACILITY NAME (1)

R.E. Ginna Nuclear Power Plant

DOCKET NUMBER (2)

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PAGE (3)

TITLE (4) Loss of Safeguards Bus During Emergency Diesel Generator Monthly Load Test, Due To Supply Breakers Tripping, Causes A Condition Prohibited By The Plant Tech Specs.

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	1	5	9	1	9	1	0	0	1	0 0 0 3 1 8 9 1
											0 5 0 0 0

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)									
POWER LEVEL (10)	0, 9, 7	20.402(a)		20.406(a)		60.73(a)(2)(iv)		73.71(a)	OTHER (Specify in Abstract below and in Text, NRC Form 308A)		
		20.406(a)(1)(i)		60.73(a)(2)(v)		73.71(a)					
		20.406(a)(1)(ii)		60.73(a)(2)(vi)							
		20.406(a)(1)(iii)	X	60.73(a)(2)(vii)							
		20.406(a)(1)(iv)		60.73(a)(2)(viii)							
		20.406(a)(1)(v)		60.73(a)(2)(ix)		60.73(a)(2)(x)					

LICENSEE CONTACT FOR THIS LER (12)

NAME

Wesley H. Backus  
Technical Assistant to the Operations Manager

TELEPHONE NUMBER

AREA CODE 3 1 5 5 2 4 1 - 4 4 4 6

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC

SUPPLEMENTAL REPORT EXPECTED (14)

EXPECTED SUBMISSION DATE (15)

MONTH DAY YEAR

YES (If yes, complete EXPECTED SUBMISSION DATE)

X NO

ABSTRACT (Limit to 1400 words, i.e., approximately 11000 single-space typewritten lines) (16)

On February 15, 1991 at 0845 EST with the reactor at approximately 87% full power, the emergency and normal feed breakers to Bus 18 tripped while the 1A Emergency Diesel Generator was being paralleled onto the bus. The loss of Bus 18 placed the plant in a condition prohibited by plant Technical Specifications.

Immediate operator action consisted of starting an additional service water pump from Bus 17. Subsequently, the Control Room operators declared an Unusual Event and commenced a plant shutdown to comply with plant Technical Specifications.

The underlying cause of the event is undetermined at this time. Further testing and evaluation will be performed.

Corrective action was to inspect Bus 18, the 1A Emergency Diesel Generator output breaker and the 1A Emergency Diesel Generator. Components were found satisfactory and returned to service.



## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO 3150-0104

EXPIRES 8/31/85

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TEXT (If more space is required, use additional NRC Form 308A's) (17)

I. PRE-EVENT PLANT CONDITIONS

The reactor was at approximately 97% steady state full power and operations was performing the monthly load test of the 1A Emergency Diesel Generator per periodic test procedure PT-12.1 (Emergency Diesel Generator 1A).

II. DESCRIPTION OF EVENT

## A. DATES AND APPROXIMATE TIMES OF MAJOR OCCURRENCES:

- o February 15, 1991, 0845 EST: Event date and time.
- o February 15, 1991, 0845 EST: Discovery date and time.
- o February 15, 1991, 0945 EST: Plant shutdown commenced to comply with plant Technical Specifications.
- o February 15, 1991, 0945 EST: Operations Shift Supervisor declares an Unusual Event.
- o February 15, 1991, 1123 EST: Plant shutdown terminated.
- o February 15, 1991, 1151 EST: Normal feed to Bus 18 restored.
- o February 16, 1991, 0130 EST: Unusual Event terminated.

B. EVENT:

On February 15, 1991 at 0845 EST, with the reactor at approximately 97% full power, the Control Room operators were paralleling the 1A Emergency Diesel Generator to Bus 18 per PT-12.1. Immediately after the 1A Emergency Diesel Generator breaker to Bus 18 was closed, it re-opened and both the High side (4160V) and Low side (480V) normal feed breakers to





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TEXT (If more space is required, use additional NRC Form 308A's) (17)

Bus 18 tripped. Control Board annunciator L-23 (Bus 18 Under Voltage Safeguards) alarmed immediately and Control Room operators observed zero (0) voltage on Bus 18. The "A" and "C" service water pumps tripped as they were powered from Bus 18. The Control Room operators started the "B" service water pump powered from Bus 17 to supplement the "D" service water pump which was already in service powered from Bus 17. The plant was stabilized at approximately 97% full power.

The loss of Bus 18 placed the plant in a condition prohibited by plant Technical Specification 3.7. However, Plant Technical Specification 3.3.4 was the most limiting specification, which states in part, "the reactor shall not be taken above cold shutdown unless at least two service water pumps, one on Bus 17 and one on Bus 18 and one loop header are operable. Anytime the above cannot be met, the reactor shall be placed in hot shutdown within 6 hours and in cold shutdown within an additional 30 hours". At 0945 EST, February 15, 1991, a plant shutdown was commenced to comply with plant Technical Specifications.

At 0945 EST, February 15, 1991, the Operations Shift Supervisor declared an Unusual Event in accordance with EPIP 1-0, "Ginna Station Event Evaluation and Classification", Emergency Action Level: Loss of Engineered Safety Features; exceeding a limiting condition for operation on a safety system requiring a plant shutdown, (Tech Spec section 3.3.4). All off-site notifications were made to the state, counties and the Nuclear Regulatory Commission (NRC).



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TEXT (If more space is required, use additional NRC Form 306A's) (17)

After testing had determined that Bus 18 was not faulted, the normal feed to Bus 18 was restored and the "A" service water pump was placed in service at 1151 EST, February 15, 1991.

After resolving the 1A Emergency Diesel Generator concerns, the Operations Shift Supervisor, with approval and concurrence from the Superintendent Ginna Production, the Operations Supervisor, and the Duty Engineer, declared the Unusual Event terminated at 0130 EST, February 16, 1991 in accordance with EPIP 3-4 (Emergency Declassification and Recovery). All off-site agencies were notified of the termination of the Unusual Event.

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

None.

D. OTHER SYSTEMS OR SECONDARY FUNCTIONS AFFECTED:

With the loss of Bus 18, two (2) of the stations four (4) service water pumps were inoperable.

E. METHOD OF DISCOVERY:

The event was immediately apparent due to alarms and indications in the Control Room.

F. OPERATOR ACTION:

Subsequent to the loss of Bus 18, the Control Room operators started the "B" service water pump, consulted the plant Technical Specifications, commenced a load reduction, and declared an Unusual Event.

G. SAFETY SYSTEM RESPONSES:

None.



## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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TEXT (If more space is required, use additional NRC Form 306A's) (17)

III. CAUSE OF EVENT

## A. IMMEDIATE CAUSE:

The loss of Bus 18 was due to the 1A Emergency Diesel Generator breaker tripping simultaneous with the normal feed breaker tripping.

## B. INTERMEDIATE CAUSE:

The 1A Emergency Diesel Generator breaker tripping to Bus 18 was due to an instantaneous overcurrent trip from the 1A Emergency Diesel Generator breaker amptector on Bus 18.

The normal feed breaker tripping to Bus 18 was due to the operation of a 50G instantaneous ground overcurrent relay on the 4160 volt breaker for Bus 18 transformer.

## C. ROOT CAUSE:

The underlying cause of the event is undetermined at this time. Further testing and evaluation will be performed.

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 prohibited by the Plant's Technical Specifications", in that the loss of Bus 18 placed the plant in a condition prohibited by plant Technical Specification 3.7.

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

- o The service water system was still capable of handling all required loads.



## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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TEXT (If more space is required, use additional NRC Form 308A's) (17)

- o Bus 18 was restored to normal service in approximately three (3) hours.
- o The 1B Emergency Diesel Generator was started and subsequently tied into Bus 17.
- o Both offsite preferred power sources were in service.
- o The plant was proceeding to hot shutdown in the six (6) hour window provided by plant Technical Specifications maintaining the plant within its design basis.

Based on the postulated worse case scenario for this event, (i.e. the loss of Bus 17 and subsequent loss of all service water) the plant could have been safely shutdown and maintained in hot shutdown until service water was restored or fire water was connected to essential components.

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

V. CORRECTIVE ACTION

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

Bus 18 was isolated and the following tests were performed:

- o A megger test of the Bus was conducted. This included both phase to phase and phase to ground readings.
- o A megger test of the Bus 18 station service transformer, high side to ground, low side to ground, and high side to low side was conducted. The cables from the 4160 volt breaker to the high side of the transformer were meggered with the high side of the transformer, as they were connected to the high side.





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TEXT (If more space is required, use additional NRC Form 306A's) (17)

- o A resistance test was performed on the high side of the transformer at the transformer terminals and from the cables at the 4160 volt breaker. This was to prove continuity of the cables, connections, and transformer windings.
- o The high side surge suppressors were tested to ensure that they had not failed.

The tests proved that all the normal supply components for Bus 18 were operable and Bus 18 power was subsequently restored via its normal supply transformer.

The 1A Emergency Diesel Generator breaker on Bus 18 was inspected per maintenance procedure M-32.1 (DB-25, DB-50 and DB-75 Circuit Breaker Maintenance and Overcurrent Trip Device Test and/or Replacement) with the following results.

- o The breaker contacts were cleaned and found to be in good condition although they showed signs of experiencing a fault current.

The 1A Emergency Diesel Generator breaker on Bus 18 was tested per M-32.1 to ensure the following:

- o Proper breaker operation in the test position.
- o Proper operation of the overcurrent trip alarm. When the breaker tripped, annunciator L-13 failed to alarm.
- o Proper breaker operation. With a long time lag between the operator turning the switch and the breaker closure, the Diesel Generator and the Bus



## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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voltage could be out of phase enough to cause the diesel breaker to trip out on overcurrent. Electrical Engineering calculations showed that a phase difference of 30 degrees could result in an overcurrent trip on the Diesel Generator breaker.

Testing of the 1A Emergency Diesel Generator breaker proved that the breaker was operating properly except for the alarm switch. The alarm switch on the breaker, which activates the L-13 annunciator, was adjusted and tested satisfactorily.

The 1A Emergency Diesel Generator breaker amptector was also tested per maintenance procedure M-32.8 (Installation And Testing Of Amptector Overcurrent Devices For DB-25, DB-50, and DB-75 Westinghouse Breakers) and found to be within specifications.

Electrical testing of the 1A Emergency Diesel Generator and cables was performed to prove their integrity using maintenance procedure M-15.1 (A or B Diesel Generator Inspection and Maintenance). Results of these tests proved that the generator and cables were in satisfactory condition.

After testing was completed on the 1A Emergency Diesel Generator and the 1A Emergency Diesel Generator Breaker on Bus 18, the 1A Emergency Diesel Generator was started. Testing was then performed on the 1A Emergency Diesel Generator voltmeter, Bus 18 voltmeter and the synchroscope for the 1A Emergency Diesel Generator. The voltmeters and the synchroscope were found to be in proper calibration.

After all maintenance and testing were completed, the 1A Emergency Diesel Generator was paralleled to Bus 18 per PT-12.1. This was performed satisfactorily and proved operability of the entire system.



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TEXT (If more space is required, use additional NRC Form 308A's) (17)

## B. ACTION TAKEN OR PLANNED TO PREVENT RECURRENCE:

In addition to the actions taken to return the systems to normal status, the following action will be taken:

- o Additional testing and calibration of the 50G overcurrent ground relay for Bus 18.
- o Paralleling the 1A Emergency Diesel Generator to Bus 18 per PT-12.1 has been performed twice while being monitored with extensive instrumentation. The immediate results identified that breaker speed of closure and operator synchronization is functioning correctly. The results of this effort will be further evaluated by the Electrical Engineering Department.
- o Applicable procedures for paralleling the Diesel Generator are being revised as required to be consistent with training.

VI. ADDITIONAL INFORMATION

## A. FAILED COMPONENTS:

None.

## B. PREVIOUS LERS ON SIMILAR EVENTS:

A similar LER event historical search was conducted with the following results. No documentation of similar LER events at Ginna could be identified.

## C. SPECIAL COMMENTS:

None.

