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ACCESSION NBR: 8909060197 DOC. DATE: 89/08/29 NOTARIZED: NO DOCKET #
 FACIL: 50-244 Robert Emmet Ginna Nuclear Plant, Unit 1, Rochester G 05000244
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 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 89-010-00: on 890730, safeguard bus undervoltage relay
 actuation causes automatic start of B emergency DG.
 W/8 ltr.

DISTRIBUTION CODE: IE22T COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 8
 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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August 29, 1989

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

Subject: LER 89-010, Safeguards Bus Undervoltage Relay Actuation
Due To A Loose Fuse Connection Causes Automatic Start
of the "B" Emergency Diesel Generator
R.E. Ginna Nuclear Power Plant
Docket No. 50-244

In accordance with 10 CFR 50.73, Licensee Event Report System, item (a)(2)(iv), which requires a report of, "any event or condition that resulted in manual or automatic actuation of any Engineered Safety Feature (ESF) including the Reactor Protection System (RPS)", the attached Licensee Event Report LER 89-010 is hereby submitted.

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

Very truly yours,


Robert C. Mecredy
General Manager
Nuclear Production

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

Ginna USNRC Senior Resident Inspector

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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) R. E. Ginna Nuclear Power Plant										DOCKET NUMBER (2) 0 5 0 0 0 2 4 4				PAGE (3) 1 OF 0 7		
TITLE (4) Safeguards Bus Undervoltage Relay Actuation Due To A Loose Fuse Connection Causes Automatic Start of the "B" Emergency Diesel Generator																
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 7	3 0	8 9	8 9	0 1 0	0 0	0 8	2 9	8 9					0 5 0 0 0			
OPERATING MODE (9) N			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)													
POWER LEVEL (10) 0 0 0			20.402(a)				20.406(a)				<input checked="" type="checkbox"/> 60.73(a)(2)(iv)				73.71(b)	
			20.406(a)(1)(i)				60.34(a)(1)				<input type="checkbox"/> 60.73(a)(2)(v)				73.71(c)	
			20.406(a)(1)(ii)				60.34(a)(2)				<input type="checkbox"/> 60.73(a)(2)(vi)				OTHER (Specify in Abstract below and in Text, NRC Form 306A)	
			20.406(a)(1)(iii)				60.73(a)(2)(i)				<input type="checkbox"/> 60.73(a)(2)(vii)(A)					
			20.406(a)(1)(iv)				60.73(a)(2)(ii)				<input type="checkbox"/> 60.73(a)(2)(vii)(B)					
			20.406(a)(1)(v)				60.73(a)(2)(iii)				<input type="checkbox"/> 60.73(a)(2)(iii)					
LICENSEE CONTACT FOR THIS LER (12)																
NAME Wesley H. Backus Technical Assistant to the Operations Manager										TELEPHONE NUMBER AREA CODE 311 15 51 21 41 - 14 14 1 41 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
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)												<input checked="" type="checkbox"/> NO				

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

On July 30, 1989, at 0806 EDST with the reactor in the hot shutdown condition, the "B" Emergency Diesel Generator started automatically due to an initiation signal from the Bus 16 undervoltage monitoring system.

The "B" Emergency Diesel Generator, after starting, attained proper voltage and frequency, but, by design, did not tie into Bus 16, because Bus 16 was at its proper voltage, fed from its normal power supply.

Immediate operator action was to verify that Bus 16 was energized and that the "B" Emergency Diesel Generator was operating properly.

The cause of the event was determined to be a loose connection on the Bus 16 undervoltage monitoring system.

Corrective action taken was to tighten the loose connection followed by a system checkout and satisfactory test and return 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 366A's) (17)

I. PRE-EVENT PLANT CONDITIONS

The unit was being maintained in the Hot Shutdown condition after being shutdown due to the inoperability of the control rod position indication system, a condition prohibited by the plant's Technical Specifications. Trouble-shooting of the control rod position indication system was in progress.

II. DESCRIPTION OF EVENT

A. DATES AND APPROXIMATE TIMES FOR MAJOR OCCURRENCES:

- o July 30, 1989, 0806 EDST: Event date and time.
- o July 30, 1989, 0806 EDST: Discovery date and time.
- o August 3, 1989: Loose connection found and tightened on bus 16 secondary potential transformer fuse connection.

B. EVENT:

On July 30, 1989 at 0806 EDST with the reactor in the hot shutdown condition, the Control Room received the following alarms: Alarm L-7 (Bus 16 Undervoltage Safeguards), and Alarm J-32 (Emergency Diesel Generator 1B Panel). Control Room operators immediately verified proper voltage on Bus 16 and that the normal power supply breaker was closed. The Control Room operators also verified that the "B" Emergency Diesel Generator had started and displayed proper voltage and frequency. As only 1 out of the 4 Bus 16 undervoltage monitoring sub-systems operated, the "B" Emergency Diesel Generator, by design, did not tie into Bus 16.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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TEXT (If more space is required, use additional NRC Form 364A's) (17)

Electrical maintenance was called to trouble-shoot the Bus 16 undervoltage monitoring system with the following results:

- o The relays on the Bus 16 undervoltage cabinet had targets showing, indicating that they actually saw an undervoltage condition. The digital voltmeter on the cabinet was also observed to fluctuate between 115 and 70 volts, also indicating that low voltage was present at the undervoltage cabinet. The undervoltage alarm came in several times between 0806 EDST July 30, 1989 and 1100 EDST, July 30, 1989, and at the same time, the Bus 16 voltage shown on the Control Room indicator was normal.

A check of the undervoltage potential transformer circuit for Bus 16 was performed with the circuit energized at approximately 1130 EDST July 30, 1989. When the check was completed, nothing abnormal was found.

Results and Test performed periodic test procedure PT-9.1 (UNDERVOLTAGE PROTECTION - 480 VOLT SAFEGUARD BUSES) on the Bus 16 undervoltage system, which proved the undervoltage cabinet was operating properly.

On August 3, 1989 maintenance procedure M-48.13 (ISOLATION OF BUS 16 UNDERVOLTAGE SYSTEM FOR MAINTENANCE REPAIR OR IF APPLICABLE MODIFICATION) was performed to remove all the fuses in the undervoltage circuit and check all the connections.

During performance of the above procedure a loose connection was found on the secondary potential transformer fuse connection. Review of the schematic wiring diagram confirmed that a loose connection causes voltage variations to be sensed by the undervoltage system, which causes the start of the "B" Emergency Diesel Generator.

The loose connection was tightened, the circuits checked out satisfactorily, and new fuses installed. The system was returned to normal and PT-9.1 was performed satisfactorily, demonstrating that the Bus 16 undervoltage system was operable.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

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

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

None.

D. OTHER SYSTEMS OR SECONDARY FUNCTIONS AFFECTED:

None.

E. METHOD OF DISCOVERY:

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

F. OPERATOR ACTION:

Following the Bus 16 undervoltage alarm and "B" Emergency Diesel Generator automatic start, the Control Room operators immediately verified proper voltage on Bus 16 via the normal power supply and that the "B" Emergency Diesel Generator displayed proper voltage and frequency.

G. SAFETY SYSTEM RESPONSES:

The "B" Emergency Diesel Generator automatically started and displayed proper voltage and frequency.

III. CAUSE OF EVENT

A. IMMEDIATE CAUSE:

The automatic actuation of the "B" Emergency Diesel Generator was due to a undervoltage signal from the Bus 16 undervoltage monitoring system.

B. INTERMEDIATE CAUSE:

The undervoltage signal from the Bus 16 undervoltage monitoring system was due to a loose connection on the secondary potential transformer fuse connection. This loose connection intermittently caused the voltage to vary to one of the Bus 16 undervoltage sub-systems.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMS NO. 3150-0104

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

C. ROOT CAUSE:

The underlying cause of the loose connection on the secondary potential transformer fuse connection was determined to be an isolated installation oversight.

IV. ANALYSIS OF EVENT

This event is reportable in accordance with 10 CFR 50.73, Licensee Event Report System item (a)(2)(iv), which requires reporting of, "any event or condition that resulted in manual or automatic actuation of any Engineered Safety Feature (ESF) including the Reactor Protection System (RPS)". The starting of the "B" Emergency Diesel Generator was an automatic actuation of an ESF system.

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 starting of the "B" Emergency Diesel Generator because:

- o The "B" Emergency Diesel Generator operated as designed.
- o Both Bus 16 power supplies (i.e., normal and emergency) were either in use or available throughout the event.
- o The Bus 16 undervoltage monitoring system problem was in the conservative direction, (i.e., the problem activated the start of the "B" Emergency Diesel Generator).

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

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMS NO. 3150-0104
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TEXT (If more space is required, use additional NRC Form 368A's) (17)

V. CORRECTIVE ACTION

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

- o The Electrical Maintenance Department, after trouble-shooting the Bus 16 undervoltage monitoring system, determined that the problem was due to a loose connection on the secondary potential transformer fuse connection, and that no other connections were loose.
- o The loose connection was tightened, the circuits checked out and new fuses installed.
- o The Bus 16 undervoltage monitoring system was returned to normal and tested satisfactorily.

B. ACTION TAKEN OR PLANNED TO PREVENT RECURRENCE:

Action planned to prevent recurrence is to add definite steps to the maintenance procedures for all safeguards buses undervoltage systems to check all circuit connections during the normal bus maintenance outages.

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:

- o LER 84-009: Automatic Actuation of any Safety Feature, (i.e. inadvertent start of the "A" Diesel Generator).

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

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

Corrective action for LER 84-009 was to install a flat washer as a spacer, where stud threads on a connection in the UV cabinet for Bus 18 did not extend far enough on the stud to provide adequate tightening of the nut onto the stud. The cause of LER 89-010 was not related to thread length concerns, was located in the UV cabinet for Bus 16, and was corrected by simply tightening the nut.

C. SPECIAL COMMENTS:

None.