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SUBJECT: LER 90-009-00:on 900609,undervoltage on safeguards buses 14 & 18 causes automatic start of EDG A.

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July 9, 1990

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

Subject: LER 90-009, Undervoltage On Safeguards Buses 14 and 18, Causes Automatic Start And Loading Of The "A" 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 90-009 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
Division Manager
Nuclear Production

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Ginna USNRC Senior Resident Inspector

Cert No P340451251

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NRC Form 366
(5-83)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/85

LICENSEE EVENT REPORT (LER)

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TITLE (4) Undervoltage On Safeguards Buses 14 and 18, Causes Automatic Start And Loading Of The "A" 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 5 0 0 0
0 6	0 9	9 0	9 0	0 0 9		0 0	0 7	0 9	9 0		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)			
N	20.402(b)	20.405(c)	X 50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10) 0 0 0	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
Wesley H. Backus Technical Assistant to the Operations Manager	AREA CODE 3 1 5 5 2 4 - 4 4 4 6

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 June 9, 1990 at 0722 EDST, with the reactor in the hot shutdown condition, the "A" Emergency Diesel Generator started automatically and tied into safeguards buses 14 and 18 due to undervoltage on these buses.

Immediate operator action was to verify that bus 14 and 18 were energized and that the "A" Emergency Diesel Generator was carrying required loads.

The cause of the undervoltage event was the inadvertent closure of 4KV bus 11A normal feed breaker, tying bus 11A to the out-of-service main generator and transformer.

Immediate corrective action was to reopen the 11A normal feed breaker. Further corrective action was to counsel station electricians on proper breaker removal from service and to request training on this subject.

I. PRE-EVENT PLANT CONDITIONS

The unit was in the hot shutdown condition following a reactor trip that occurred June 9, 1990 at 0411 EDST. Subsequent to this reactor trip, at approximately 0715 EDST, June 9, 1990, a lead electrician accompanied by two less experienced electricians and an auxiliary operator began performing a prime mover switching order hold for isolation of all energy sources to the main turbine generator.

As part of this standard prime mover hold, non-safeguards 4KV bus 11A normal feed breaker was to be racked out and held. Bus 11A, with the turbine generator on the line, is tied to the output of the turbine generator via its normal feed breaker through a 19.5KV/4KV step down transformer. But with the turbine generator off the line, bus 11A normal feed breaker was open and the bus was cross-tied to 4KV bus 12A which was being supplied by offsite power. Safeguard buses 14 and 18 normal supply is also from 4KV bus 12A, through 4KV/480V stepdown transformers.

II. DESCRIPTION OF EVENT

A. DATES AND APPROXIMATE TIMES OF MAJOR OCCURRENCES:

- June 9, 1990, 0722 EDST: Event date and time.
- June 9, 1990, 0722 EDST: Discovery date and time.
- June 9, 1990, 0753 EDST: Safeguards buses 14 and 18 normal power supply restored.
- June 9, 1990, 0759 EDST: "A" Emergency Diesel Generator stopped and realigned for auto standby.

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

B. EVENT:

On June 9, 1990, at 0722 EDST, with the reactor in the hot shutdown condition, the plant electricians were implementing the holding and racking out of bus 11A normal feed breaker. During this process, the breaker was inadvertently closed.

The inadvertent closure of the bus 11A normal feed breaker resulted in tripping the supply breaker for safeguard bus 14 and 18 on undervoltage, and the "A" Emergency Diesel Generator started and loaded on to buses 14 and 18.

The inadvertent closure of the bus 11A normal feed breaker happened as follows:

- The lead electrician verified the breaker open via the indication lights on the breaker cubicle door.
- The lead electrician opened the breaker cubicle door and verified the breaker open by the indicator flag.
- The control power fuse switch was opened by the lead electrician.
- An explanation of the location and function of the trip device was given to the less experienced electricians by the lead electrician.
- At this time it was noted that the wrong breaker rack out cranking device had been obtained so one of the less experienced electricians went to obtain the proper cranking device.

- When the less experienced electrician returned with the proper cranking device, the lead electrician proceeded to further ensure the breaker was open by lifting the breaker mechanical trip device. However, the breaker charging spring device was lifted instead causing the 11A normal feed breaker to close. Immediately realizing the mistake, the lead electrician reclosed the control power fuse switch and ensured the breaker reopened.

The inadvertent closure of the 11A bus normal feed breaker momentarily tied 4KV buses 11A and 12A to the out-of-service main generator and transformer creating the undervoltage condition.

The control room operators immediately checked safeguard buses 14 and 18 for proper voltage and that the "A" Emergency Diesel Generator was carrying the required loads.

At approximately 0753 EDST, June 9, 1990, the control room operators restored buses 14 and 18 to their normal supply lineup.

At approximately 0759 EDST, June 9, 1990, the "A" Emergency Diesel Generator was stopped and realigned for auto standby.

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

None.

D. OTHER SYSTEMS OR SECONDARY FUNCTIONS AFFECTED:

- The 1A condenser circulating water pump tripped out on the bus 11A undervoltage condition.
- 480V non-safeguards bus 13 tripped out on the bus 11A undervoltage.

E. METHOD OF DISCOVERY:

The event was immediately apparent due to alarms and indications in the control room, and local indication at the 11A normal feed breaker cubicle.

F. OPERATOR ACTION:

Following the safeguard buses 14 and 18 undervoltage and subsequent start of the "A" Emergency Diesel Generator, the control room operators immediately checked safeguard buses 14 and 18 for proper voltage and that the "A" Emergency Diesel Generator was carrying the required loads.

Subsequently, the control room operators restored safeguards buses 14 and 18 to their normal power supply lineup, and stopped and realigned the "A" Emergency Diesel Generator for auto standby.

G. SAFETY SYSTEM RESPONSES:

The "A" Emergency Diesel Generator automatically started and tied into safeguards buses 14 and 18 as designed.

III. CAUSE OF EVENT

A. IMMEDIATE CAUSE:

The automatic actuation of the "A" Emergency Diesel Generator was due to an undervoltage signal from bus 14 and bus 18 undervoltage monitoring systems.

B. INTERMEDIATE CAUSE:

The undervoltage signal from the bus 14 and bus 18 undervoltage monitoring system was due to an actual undervoltage on buses 14 and 18.

The actual undervoltage on buses 14 and 18 was due to the 4KV bus 11A normal feed breaker being closed, tying 4KV buses 11A and 12A to the out-of-service main generator and transformer.

C. ROOT CAUSE:

The underlying cause of the event was due to personnel error. A Human Performance Enhancement System (HPES) evaluation concluded that contributing factors were lack of self-verification, lack of standard guidance for racking in and racking out breakers, and no training on the standard guidance. This electrician intended to operate the mechanical trip device; it is not common practice for other station electricians to operate this device, and operation of this device is not needed nor desired.

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 automatic start and loading of the "A" 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 and loading of the "A" Emergency Diesel Generator because;

- The "A" Emergency Diesel Generator operated as designed.

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

- The unit was in hot shutdown.
- Both buses 14 and 18 power supplies (i.e. normal and emergency) were either in use or immediately available throughout the event.
- Even considering the worst case credible scenario during this event, (i.e. the complete loss of the 11A and 12A 4KV buses and offsite 34.5 KV circuit 751), offsite 34.5 KV circuit 767 could have been cross tied immediately to supply power to 4KV buses 12A and 11A respectively.

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:

- After inadvertent closure, the bus 11A normal feed breaker was immediately reopened.
- Affected equipment was tested and inspected for signs of damage, with no damage identified.
- Buses 14 and 18 were returned to their normal power supplies and the "A" Emergency Diesel Generator was taken out of service and realigned for auto standby.

B. ACTION TAKEN OR PLANNED TO PREVENT RECURRENCE:

- The individual who erred was counseled on the desired technique for holding a breaker and the need for self-verification.
- Other station electricians were counseled on the desired technique for holding and restoring 480 volt and 4160 volt breakers.

- o A training change request was initiated for training maintenance and operating personnel on standardized techniques for racking in and racking out 480 volt and 4160 volt breakers.

- o Written guidance will be established for holding breakers from service and restoring breakers to service.

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 with the same root cause at Ginna Station could be identified.

C. SPECIAL COMMENTS:

None.