



**CENTERIOR
ENERGY**

PERRY NUCLEAR POWER PLANT

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Robert A. Stratman
VICE PRESIDENT - NUCLEAR

April 18, 1994
PY-CEI/NRR-1792L

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

Perry Nuclear Power Plant
Docket No. 50-440
LER 94-009-00

Gentlemen:

Enclosed is Licensee Event Report 94-009-00 concerning a Diesel Generator which returned to rated speed during shutdown.

If you have questions or require additional information, please contact Henry Hegrat - Regulatory Affairs at (216) 280-5606.

Very truly yours,

RAS:LKR:sc

Enclosure: LER 94-009-00

cc: NRC Project Manager
NRC Resident Inspector Office
NRC Region III

210032

9404210077 940418
PDR ADDCK 05000440
S PDR

Operating Companies
Cleveland Electric Illuminating
Toledo Edison

JE22

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 (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)

Perry Nuclear Power Plant, Unit 1

DOCKET NUMBER (2)

05000 440

PAGE (3)

1 OF 5

TITLE (4)

Diesel Generator Returns to Rated Speed During Shutdown

EVENT DATE (5)			LER NUMBER (6)			REPORT NUMBER (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
03	19	94	94	009	00	04	18	94		05000
OPERATING MODE (9) At all times			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
POWER LEVEL (10) 0			20.402(b)		20.405(c)		X		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)		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

Linda K. Routzahn, Compliance Engineer

TELEPHONE NUMBER (Include Area Code)

(216) 280-5781

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPD5	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPD5

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 March 19, 1994 at 1526 hours, during testing of the Division 1 Diesel Generator (D/G) trip logic the D/G engine unexpectedly returned to rated speed during shutdown when a manual engine stop signal was removed. The D/G had been placed in the Emergency mode of operation for the trip logic tests, which deactivated all shutdown signals except for local or remote manual stop, and engine overspeed and generator differential trips. Engine shutdown from the retest was attempted by a remote manual stop signal prior to returning the engine to normal operating mode. The stop signal was removed when the D/G control switch was released from the STOP position and the D/G returned to rated speed from coastdown, as appropriate for the emergency mode of operation. Both trains of the D/G Building Ventilation System (DGBVS) were initially running in support of the retest. One train which had been shut down to standby readiness during the retest, restarted as designed when engine speed reached 441 rpm, increasing.

The D/G was returned to normal operating mode, the engine was successfully shut down by placing the D/G control switch in the stop position and the DGBVS was shutdown to standby readiness.

The cause of the event was personnel error, failure to follow procedures, in that test personnel did not recognize the need to obtain proper authorization of a deviation from the instruction used for testing.

**LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION**

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Perry Nuclear Power Plant, Unit 1	05000 440	94	009	00	2 5

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

I. Introduction

On March 19, 1994 at 1526 hours, during testing of the Division 1 Diesel Generator (D/G) trip logic, the D/G [DG] unexpectedly returned to rated speed and voltage during shutdown when a manual engine stop signal was removed. The D/G had been placed in the Emergency mode of operation for the trip logic tests. Engine shutdown from the retest was attempted prior to returning the engine to normal operating mode and the D/G returned to rated speed and voltage from coastdown, as appropriate for the Emergency mode of operation. The D/G Building Ventilation System (DGBVS) [VJ] operated as designed in support of D/G operation. The D/G was returned to normal operating mode and the engine was successfully shut down. The DGBVS was shut down to standby readiness.

Prior to the event, the plant's fourth refueling outage was in progress, with all fuel removed from the reactor vessel, reactor power at zero percent, reactor pressure at zero psig and reactor water temperature at 90 degrees F.

This event is reported pursuant to 10CFR50.73(a)(2)(iv), actuation of an Engineered Safety Feature.

II. Description of the Event

On March 19, 1994 at 1526 hours, with the plant at zero percent reactor power and a refueling outage in progress, the Division 1 Diesel Generator (D/G), and Diesel Generator Building Ventilation System (DGBVS), restarted during shutdown from post maintenance testing of the D/G trip logic system when a manual stop signal was removed.

On March 17, 1994, abnormal trip logic annunciation was observed during performance of Division 1 D/G 18 month functional testing when the engine high crankcase pressure trip improperly activated during testing of the engine high vibration trip. On March 19, 1994, a maintenance work order was implemented to troubleshoot the engine pneumatic controls which identified and repaired leaks in the engine pneumatic control logic lines.

Subsequent to repair of the leaks in the logic lines, trip logic retests were performed to verify operation of the engine vibration sensor [VT]. In accordance with the Instrument Maintenance Instruction (IMI) specified for use in the trip logic retest, the D/G was placed in the Emergency mode of operation prior to engine start by installing a temporary air jumper in the pneumatic control logic board [CBD]. This deactivated all shutdown signals except for local or remote manual stop, and engine overspeed and generator differential trips.

Section 5.2.2 of Instrument Maintenance Instruction (IMI-E2-51); Revision 0, specified in the work order for retest of the trip logic vibration sensor,

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provides instruction to place the D/G in Emergency operating mode by installing a temporary air jumper, start the D/G, perform vibration sensor checks and return the D/G to normal operating mode by removing the temporary air jumper, but does not provide instruction to shut down the engine. Engine shutdown is addressed in section 5.3 of the IMI, which was not specified for use in the retest section of the work order.

When vibration sensor retests were complete, the work group isolated the pressure source for the air jumper, but requested control room operators to remotely shut down the engine prior to returning the D/G to Normal operating mode by removing the air jumper and reinstalling the permanent tubing. Although the supply air to the air jumper was isolated, the jumper remained pressurized; therefore, the D/G remained in Emergency operating mode. When the remote engine stop signal was removed by the operator releasing the D/G control switch [HS] from the STOP to the (spring return to) AUTO position, the engine returned to rated speed from coastdown as appropriate for the emergency mode of operation. Both trains of the D/G Building Ventilation System (DGBVS) were initially running in support of the retest. One train which had been shut down to standby readiness during the retest, restarted as designed when the engine speed reached 441 rpm, increasing.

The temporary air jumper was then removed, the engine was successfully shut down by placing the D/G control switch in the STOP position, and the DGBVS was shutdown to standby readiness.

III. Cause of Event

The cause of the event is personnel error, failure to follow procedure.

Section 5.2.2 of Instrument Maintenance Instruction (IMI-E2-51); Revision 0, specified in the work order for retest of the trip logic vibration sensor provides instruction to place the D/G in Emergency operating mode, start the D/G, perform vibration sensor checks and return the D/G to normal operating mode. Engine shutdown is addressed in section 5.3 of the IMI, which was not specified for use in the retest section of the work order. Retest personnel requested concurrence from the Responsible System Engineer (RSE) to remove the temporary tubing after engine shutdown, which deviated from the IMI. The RSE was preoccupied with verifying operation of the generator field breaker which was not operating properly, and concurred with the deviation. Neither the retest personnel or the RSE recognized the need to obtain Unit Supervisor authorization of the change as required by Plant Administrative Procedure (PAP-0905), Work Order Process.

IV. Analysis of Event

The standby diesel generator systems provide an independent source of AC power to the Division 1, Division 2 and Division 3 Class 1E buses [BU] in the event of a

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loss of the respective offsite power supply. Divisional loads are distributed such that loss of a single division from any cause does not affect redundant equipment. During this event, with the Division 1 D/G out of service for maintenance, Class 1E power was available from the preferred and alternate preferred offsite power supplies, the Division 2 D/G was operable, and the Division 3 D/G was available. Therefore, this event is not considered to be safety significant.

V. Previous Similar Events

A review of previous events identified a 1989 event (LER 89-014) in which inadvertent actuation of the initiation logic for the High Pressure Core Spray System [BG], during maintenance troubleshooting activities, resulted in an unexpected, automatic start of the Division 3 Diesel Generator. The event was attributed to personnel error due to miscommunication between control room operators and maintenance technicians. Corrective actions included counseling operations crews regarding the importance of knowing plant status and details of planned work. The event was also reviewed during requalification training for operators and Instrumentation and Controls personnel. Although both events resulted in D/G operation, the causes of the events are not considered similar.

VI. Corrective Actions

Personnel involved in the event have been counseled regarding the details of the event, the need to maintain awareness of procedural requirements particularly when distracting factors are present, and use of the STAR (Stop, Think, Act, Review) techniques to prevent occurrences of this type. This event will also be reviewed with RSE's and appropriate Instrumentation and Controls personnel.

The Instrument Maintenance Instruction (IMI) used to perform D/G engine vibration sensor checks includes a precaution that the engine will be placed in the Emergency operating mode for the sensor check. The IMI will be revised to emphasize the need to return the engine to Normal operating mode prior to engine shutdown.

Training on the D/G pneumatic controls will be provided to appropriate RSE's and Instrumentation and Controls technicians.

The Plant Administrative Procedure for the Work Order process provides for determination of retest requirements upon completion of troubleshooting activities. Identification of retest requirements is the responsibility of the RSE. Guidance is provided by the Plant Engineering Guidelines (PEG's) to ensure that if only portions of an instruction are used in specifying retest requirements, the RSE is to review other sections of the instruction to ensure

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appropriate consideration of system status, line-ups and prerequisites. The guidance provided by the PEG's for specifying retest requirements and relevance to this event will be re-reviewed with RSE's.

Additionally, all licensed and non-licensed plant operators will receive training on this event as part of requalification training.

Energy Industry Identification System codes are identified in the text as [XX].