

EXPIRES 04/30/98

## LICENSEE EVENT REPORT (LER)

(See reverse for required number of  
digits/characters for each block)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 60.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), 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)

Millstone Nuclear Power Station Unit 2

DOCKET NUMBER (2)

05000336

PAGE (3)

1 OF 3

TITLE (4)

Inadequate Surveillance Procedures Used to Verify Emergency Diesel Generator Operability

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
12	02	96	96	-- 038 --	00	12	31	96	FACILITY NAME	DOCKET NUMBER
OPERATING MODE (9)		5	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more) (11)							
POWER LEVEL (10)		000	20.2201(b)		20.2203(a)(2)(v)		<input checked="" type="checkbox"/>		50.73(a)(2)(ii)	50.73(a)(2)(viii)
			20.2203(a)(1)		20.2203(a)(3)(i)				50.73(a)(2)(ii)	50.73(a)(2)(x)
			20.2203(a)(2)(i)		20.2203(a)(3)(ii)				50.73(a)(2)(iii)	73.71
			20.2203(a)(2)(ii)		20.2203(a)(4)				50.73(a)(2)(iv)	OTHER
			20.2203(a)(2)(iii)		50.36(c)(1)				50.73(a)(2)(v)	Specify in Abstract below or in NRC Form 366A
			20.2203(a)(2)(iv)		50.36(c)(2)				50.73(a)(2)(vii)	

## LICENSEE CONTACT FOR THIS LER (12)

NAME

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## 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)

YES (If yes, complete EXPECTED SUBMISSION DATE).	<input checked="" type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
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## ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On December 2, 1996, it was discovered that the monthly surveillance procedures for the Emergency Diesel Generators (EDG) failed to meet the requirements of Technical Specification 4.8.1.1.2.a.2. The specification requires verifying the EDG starts from ambient condition and accelerates to greater than or equal to 90 percent of rated speed and greater than or equal to 97 percent of rated voltage in less than or equal to 15 seconds. The procedure timing process to verify EDG voltage and speed began with the EDG start signal and ended with the illumination of "Ready-to-Load" (RTL) annunciator windows. The RTL windows alarmed when the measured voltage was less than the requirement of 97 percent of rated voltage. As a result of this discovery, the EDGs were declared inoperable on December 3, 1996.

The cause of this event was failure to properly incorporate Technical Specification surveillance requirements during recent revisions of the monthly EDG surveillance tests and the erroneous use of RTL annunciator to verify that the EDG voltage requirement was satisfied.

Corrective action included changing EDG surveillance procedures to use other instrumentation to verify the proper time-voltage requirement. The EDGs were tested using the revised procedures and performed satisfactorily.

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

I. Description of Event

On December 2, 1996, it was discovered that there may be a potential problem affecting Emergency Diesel Generator (EDG) [EK] surveillance procedures SP2613A, "Diesel Generator Operability Tests, Facility 1," and SP2613B, "Diesel Generator Operability Tests, Facility 2." Upon further evaluation, it was determined that the procedures failed to meet the requirements of Technical Specification 4.8.1.1.2.a.2. As a result of this discovery, the EDGs were declared inoperable on December 3, 1996. At the time of the discovery of this event, the unit was in mode 5 at 0 percent power.

The Technical Specification requires verifying, at least once per 31 days on a staggered basis, that the EDG starts from ambient condition and accelerates to greater than or equal to 90 percent of rated speed and greater than or equal to 97 percent of rated voltage in less than or equal to 15 seconds. The rated voltage is 4160 volts and rated speed is 900 rpm. This requirement was not met due to the way the EDG timing process in the surveillance procedures was performed to verify rated speed and voltage. The timing began with the EDG start signal and ended when the "Ready to Load" (RTL) annunciator [ANN] window alarmed. The RTL annunciator alarm was discovered as being calibrated to illuminate at 96.9 percent of rated voltage for the A EDG and 96.2 percent of rated voltage for the B EDG, which represents less than the voltage required to meet the EDG voltage acceptance criteria.

Investigation of the event revealed that the previous revision of SP2613A and SP2613B required operators to observe and record measurements from the voltage meter located on control room control panel C08 during the timing process to verify that the EDG voltage had reached 97 percent of rated voltage in less than or equal to 15 seconds. The procedure revision deleted the requirement to verify the EDG voltage requirement using the control panel C08 voltage meter, thereby relying on the RTL annunciator.

This event is being reported pursuant to the requirements of 10CFR50.73(a)(2)(i)(B), any operation or condition prohibited by the plant's Technical Specifications.

II. Cause of Event

The cause of this event was failure to properly incorporate Technical Specification surveillance requirements during recent revisions of the monthly EDG surveillance tests and the erroneous use of the RTL annunciator to verify that the EDG voltage requirement was satisfied.

III. Analysis of Event

The functional requirement of the EDGs is to provide a reliable onsite source of auxiliary power in the event of a loss of normal power. The EDGs are redundant, independent, and separate and are connected to a 4160-volt emergency bus. EDG tests are designed to demonstrate that the EDGs will provide adequate power for the operation of plant equipment. The function of the Technical Specification monthly surveillance requires that in order to ensure operability, the EDG must be verified to start from ambient condition and accelerate to greater than or equal to 90 percent of rated speed (810 rpm) and to greater than or equal to 97 percent of rated voltage (4035 volts) in less than or equal to 15 seconds. An independent review by Operations of all surveillance procedures associated with Technical Specification surveillance requirements discovered a deficiency in the EDG monthly surveillance tests that used the RTL annunciator as part of the timing process to verify that the EDG could reach the required voltage within 15 seconds.

Previous data was reviewed for the A and B EDG start times that used the deficient procedures. The data indicated that the EDGs achieved rated speed and voltage in approximately 10 seconds using the RTL annunciator. Considering that the annunciators were found to be calibrated to illuminate at 96.9 and 96.2 percent of rated voltage, and that the time associated with this voltage is approximately 10 seconds, the additional time it

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would take to achieve 97 percent of rated voltage would not result in the total time exceeding 15 seconds. It was therefore reasonably assumed that the EDGs had achieved the required 97 percent of rated voltage and 90 percent of rated speed in less than 15 seconds since there was sufficient margin based on the test results.

The EDGs are also tested once per 18 months during shutdown to verify that the EDG can start and accelerate to rated speed and voltage, and begin to accept emergency power loads within 15 seconds. This test is more comprehensive than the monthly surveillance tests but is not used to additionally verify the rated speed and voltage requirements of Technical Specification 4.8.1.1.2.a.2. However, in past tests performed on an 18 month basis, the EDGs have performed satisfactorily within the established limits of speed, time and voltage requirements. The most recent testing of the EDGs using the EDG monthly surveillance procedures demonstrate that they are operable.

Based on the testing of the EDGs, this event is not safety significant.

IV. Corrective Action

Upon identification of this event, the surveillance procedures (SP2613A and SP2613B) were revised and corrected to require operators to monitor voltage indication using additional instrumentation (voltage meters located on the control room control panel C08), along with the RTL annunciator, to verify that the EDG is within the requirements of 90 percent of rated speed and 97 percent of rated voltage. The A and B EDGs were successfully tested on December 4, 1996, using the revised procedures and returned to operable status.

Technical Specification surveillance procedures will be reviewed to ensure compliance with Technical Specification surveillance requirements as part of the Millstone Unit No. 2 Operational Readiness Plan. The review will initially focus on Technical Specification surveillance procedures required for Mode 6 and defueled. Surveillance procedures required for subsequent mode changes will be reviewed prior to mode entry. (This commitment was previously sent to the NRC in the response to NOV 336/96-08-07, NNECO Commitment No. B16076-2.)

V. Additional InformationSimilar Events

Previous LERs that involve deficient surveillance procedures include:

- LER 96-023-00: Failure to Perform Technical Specifications Surveillances on Certain Containment Isolation Valves
- LER 96-024-00: Response Time Testing of RPS and ESAS Failed to Include Response Time of SPEC 200 Electronics
- LER 96-025-00: Enclosure Building Filtration Actuation Signal/Auxiliary Exhaust Actuation Signal Interlock Not Tested Periodically
- LER 96-026-00: Incomplete Technical Specification Required Surveillance - Valve Lineups Inside Containment
- LER 96-035-00: Failure to Perform Periodic Surveillance Testing for Interlock Function Associated with the Main Steam Isolation System Function of the Engineered Safeguards Actuation System
- LER 96-037-00: Inadequate Surveillance Procedure for Verifying Average Water Temperature at the Unit 2 Intake Structure

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