

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: 50.0 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 1

DOCKET NUMBER (2)

05000245

PAGE (3)

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TITLE (4)

Failure To Verify Gas Turbine Generator Air Start Requirements

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
02	03	97	97	008	00	03	03	97	FACILITY NAME	DOCKET NUMBER
OPERATING MODE (9)		N	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)			50.73(a)(2)(i)	50.73(a)(2)(viii)
			20.2203(a)(1)			20.2203(a)(3)(i)			<input checked="" type="checkbox"/> 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	Robert W. Walpole, MP1 Nuclear Licensing Manager	TELEPHONE NUMBER (Include Area Code)	(860)440-2191
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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)

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

On February 3, 1997, with the plant shutdown and the reactor in the COLD SHUTDOWN condition, a review of the Gas Turbine Generator (GTG) preoperational test has revealed that the test did demonstrate that the starting air receiver does contain sufficient inventory for three starts without recharging, however, the initial start was performed at 250 psig and the system pressure has since been maintained between 200 psig and 235 psig. Therefore, the starting air system has been operated outside the Plant Design Basis and is being reported in accordance with the requirements of 10 CFR 50.73(a)(2)(ii).

There were no automatic nor manually initiated safety system responses as a result of this event.

The cause of this event is the failure to properly identify and verify the design basis of the GTG air start subsystem and the corrective action is to establish the design basis, document it in the UFSAR and verify it by testing.

There were no safety consequences as a result of this event. The safety significance of this event is low since the GTG air receiver has been demonstrated to contain sufficient inventory to provide at least one GTG start each month.

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

I. Description of Event

On February 3, 1997, with the plant shutdown and the reactor in the COLD SHUTDOWN condition, the preoperational test for the Gas Turbine Generator (GTG) was being reviewed for information on the starting air compressor. The review revealed that the test included a verification that the air receiver contains sufficient inventory to perform three starts without recharging, as described in the Updated Final Safety Analysis Report (UFSAR). The initial start was performed at 250 psig and the subsequent starts were performed at 213 psig and 178 psig respectively. In addition, a review of the setpoints that control the start and stop of the starting air compressor indicates that the air receiver pressure is maintained between 200 psig and 235 psig. Therefore, since the GTG starting air receiver pressure has consistently been maintained below 250 psig, there is no assurance that there has been sufficient air for three starts without recharging. As a result, this event was immediately reported on February 3, 1997, in accordance with the requirements of 10 CFR 50.72(b)(2)(i).

There were no automatic nor manually initiated safety system responses as a result of this event.

The operational status of the GTG was inoperable at the time of this event and the GTG will remain inoperable until the design basis has been established, documented in the UFSAR and validated by test.

II. Cause of Event

The cause of this event is the failure to properly identify and verify the design basis of the GTG air start subsystem. The original Final Safety Analysis Report and subsequent revisions state that the starting air pressure is 250 psig, however, since the subsystem is designed such that the pressure is maintained between 200 psig and 235 psig, the design basis is not properly identified. Since the preoperational test was performed starting at 250 psig, it verified a design basis that had not been properly identified.

III. Analysis of Event

This report is pursuant to 10CFR50.73(a)(2)(ii).

The GTG is one of two sources of emergency power that are utilized to mitigate the consequences of a Loss of Normal Power. The other source is an Emergency Diesel Generator.

The GTG system is designed with a compressed air subsystem to achieve a start. This subsystem consists of one air receiver, one air compressor, valves and interconnecting piping. The air compressor is powered from the normal 480 VAC supply and is controlled by a single pressure switch. The switch is set to start the compressor when the air pressure in the starting air receiver falls to 200 psig and stop the compressor when the air pressure in the starting air receiver reaches 235 psig.

The preoperational test was performed by demonstrating the initial start with the air receiver pressure at 250 psig, subsequent starts were performed at 213 psig and 178 psig respectively. When compared to the UFSAR and to the starting air compressor start and stop setpoints, two issues arise, these are:

- a) The air compressor start setpoint is 200 psig, therefore, the air receiver is always maintained at or greater than 200 psig, less instrument error. This being so, the starting air pressure for the initial start of the test should have been 200 psig, less instrument error.

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

- b) The UFSAR states that the air receiver has sufficient capacity for three start attempts. Clarification is required to establish if start attempts means successful starts, as demonstrated by the preoperational test, or if three start attempts means two start attempts and two start failures, followed by one successful start.

There were no safety consequences as a result of this event. The safety significance of this event is low since the GTG air receiver has been demonstrated to contain sufficient inventory to provide at least one GTG start each month.

IV. Corrective Action

As a result of the event described in this LER and the subsequent investigation, the following corrective action is required:

1. Establish the design basis for the GTG starting air subsystem, including the minimum starting air pressure and the definition of three start attempts. When this is established, revise the UFSAR accordingly. This corrective action will be completed before the GTG is declared operable and prior to the performance of the verification test.
2. Perform a special test to verify that the starting air receiver contains sufficient inventory for three start attempts, as defined in the UFSAR, without recharging. The initial start will be performed with the air receiver at the air compressor start switch setpoint, less instrument accuracy. This test will be completed before the GTG is declared to be operable.
3. A review of other systems to identify and resolve design basis discrepancies is ongoing as part of the design basis verification program to address 10CFR50.54(f) concerns. The 10CFR50.54(f) review and recommendation implementation will be completed before startup for cycle 16.

V. Additional InformationSimilar Events

A similar event is recorded on LER 96-55, on this occasion it was noted that the design basis of the Emergency Diesel Generator (EDG) starting air system was not properly identified and verified, because the UFSAR states that the EDG starting air pressure is 250 psig, yet it is normally maintained between 220 psig and 250 psig. In addition, the test to verify that each of the EDG starting air receivers contain sufficient inventory for three cold starts without recharging was performed, starting at 250 psig rather than 220 psig.

Manufacturer Data

Not Applicable