NRC FORM 366 (5-92) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 5/31/95

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.

LICENSEE EVENT REPORT (LER)

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

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Limerick Generating Station, Unit 1	05000 352	1 OF 4

TITLE (4)
Capability to reject the electrical load of an RHR pump not fully verified

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
									Limerick, Unit 2	05000 353
10	26	84	96	-- 019 --	00	11	11	96	FACILITY NAME	DOCKET NUMBER 05000

OPERATING MODE (9)	1
POWER LEVEL (10)	100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)

	20.402(b)		20.405(c)		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)	X	50.73(a)(2)(vii)		OTHER
	20.405(a)(1)(iii)	X	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	TELEPHONE NUMBER (Include Area Code)
James L. Kananter, Manager, Experience Assessment, LGS	(610) 718-3400

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 15 single-spaced typewritten lines) (16)

On 10/10/96, an engineering evaluation concluded that the previously established surveillance testing for the Emergency Diesel Generators (EDGs) may not have fully verified the capability to successfully reject an electrical load of equal to or greater than the specified electrical load of a Residual Heat Removal (RHR) pump motor (992 kW) as required by Technical Specifications (TS). This resulted in operation prohibited by TS and in a condition where at least two independent trains of a single safety system being inoperable due to a common cause. The testing procedures did reject the electrical load of an RHR pump motor while the RHR pump was operating at the designed post-accident flow rate. However, the actual electrical load was less than the TS value of 992 kW. By 10/11/96, an engineering evaluation was performed or the EDG was tested to verify the capability of each EDG to reject a load of 992 kW. Analysis of previous test results has concluded that the EDGs were capable of rejecting the specified electrical load of the RHR pump motor while maintaining the 4kV safeguard bus within the TS limits for voltage and frequency. The cause of the event was an inadequate test procedure. As originally written, the test did not incorporate data from the pump/motor curves to ensure at least 992 kW of electrical load was actually rejected during the test. The tests will be revised prior to the next performance and a TS change request is being pursued.

Unit Conditions Prior to the Event:

Unit 1 and Unit 2 were both in Operational Condition 1 (Power Operation) at 100% power level at the time of the discovery of this issue. There were no systems, structures or components inoperable or out of service that contributed to the event.

Description of the Event:

On October 10, 1996, an engineering evaluation concluded that the previously established surveillance testing for the Emergency Diesel Generators (EDGs, EIIS:DG) may not have fully verified the capability to successfully reject an electrical load of equal to or greater than the specified electrical load of a Residual Heat Removal pump motor (992 kW). The RHR pump motor is the single largest post accident electrical load on the 4kV safeguard bus. Technical Specifications (TS) Surveillance Requirement (SR) 4.8.1.1.2.e.2 establishes this requirement along with limits for the specified voltage and frequency fluctuations immediately following the trip of the RHR pump motor. These tests are performed on each EDG and the associated safeguard bus and loads while the unit is shutdown and while the electrical bus is disconnected from the offsite electrical power source.

The testing procedures did reject the electrical load of an RHR pump motor while the RHR pump was operating at the designed post-accident flow rate of 10,000 gpm (approximately 940 to 992 kW). However, due to the characteristic of the pump/motor curves, the specified electrical load occurs at a flow rate between 7,000 and 9,000 gpm depending on the RHR pump. Therefore, the minimum prescribed electrical load of 992 kW was not always rejected during the testing. Additionally, for those tests that rejected less than 992 kW, an analysis using the actual test data was not performed to conclude whether the EDG would have been capable of rejecting the 992 kW while maintaining the voltage and frequency within the required limits. Since these tests were originally written to establish a RHR pump flow rate of 10,000 gpm, the TS SR was not always met for each EDG since original fuel load of Unit 1 and Unit 2. (i.e., October 26, 1984, and June 22, 1989, respectively).

Since this issue was not discovered until October 10, 1996, the TS actions for each inoperable EDG were not previously taken within the specified TS Action limits resulting in operation prohibited by TS. Additionally, this condition resulted in at least two independent trains of a single safety system being administratively inoperable due to a common cause. Therefore, this report is being submitted in accordance with the requirements of 10CFR50.73(a)(2)(i)(B) and 10CFR50.73(a)(2)(vii).

On October 10, 1996, an engineering evaluation was performed using the most recent test results. Two (2) of the EDGs had been tested with a rejected load of greater than or equal to 992 kW and were in surveillance. The evaluation further verified five (5) of the remaining six (6) EDGs were capable of rejecting a load of equal to or greater than 992 kW with voltage and frequency fluctuations within the TS limits. The test data for the eighth EDG was not immediately available and this EDG was successfully tested on October 11, 1996.

Analysis:

The consequences of this event were minimal in that no radioactive material was released, an accident did not occur, and the EDGs were not called upon to perform their design function. Analysis of previous test results has concluded that the EDGs were capable of rejecting the specified electrical load of the RHR pump motor (992 kW) while maintaining the 4kv safeguard bus within the TS limits for voltage and frequency. Therefore, the EDGs were fully capable of performing their design function even though the analysis was not performed within the specified TS SR interval and TS ACTION limits.

Cause of the Event:

The cause of the event was an inadequate test procedure. As originally written to meet the TS, the procedure established a pre-test condition with the RHR pump operating at 10,000 gpm based on the assumption that this flow rate produced the specified electrical load for the motor and that 10,000 gpm represented the design basis flow for the RHR system. The tests did not incorporate the data from the pump/motor curves to ensure at least 992 kW of electrical load was actually rejected during the test.

Corrective Actions:

The test procedures will be revised prior to the next performance. The revisions will ensure 992 kW or more electrical load is rejected during the tests or that an analysis is performed that uses the test data to ensure that each EDG has the capability to successfully reject 992 kW.

A TS change request is being pursued to revise the TS SR that will remove the "992 kW" text and establish a requirement to verify the capability to reject an electrical load of equal to or greater than the single largest post accident electrical load.

Previous Similar Occurrences:

None