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 3

TITLE (4)
HPCI System Rendered Inoperable Due to Closing Turbine Exhaust Line PCIV

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
10	25	97	97	-- 011 --	0	11	25	97		05000
									FACILITY NAME	DOCKET NUMBER 05000

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)			
POWER LEVEL (10)	100	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)	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	TELEPHONE NUMBER (Include Area Code)
T. A. Moore, 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
	BJ	ISV		NO						

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 10/25/97, the Unit 1 HPCI turbine exhaust line isolation valve, HV-055-1F072, failed to go fully closed during an increased frequency surveillance test. The valve was subsequently stroked satisfactorily from the control room, with no additional actions outside the control room. In response to the initial test failure, Operations personnel closed and de-energized the HV-055-1F072 valve, in accordance with Technical Specification requirements for an inoperable Primary Containment Isolation Valve (PCIV). This action, which was not preplanned, rendered HPCI inoperable by isolating the turbine exhaust flow path. The valve was diagnostically tested. The most probable cause of the valve failure is an intermittent mechanical interaction within the valve internal components or an intermittent degraded power supply created by a malfunctioning electrical component. There were no actual consequences from this event and the potential consequences were minimal. The valve's torque switch setting was increased within analyzed limits and the motor control center was inspected. Future corrective actions include: increased frequency surveillance testing, corrective maintenance tasks to investigate the valve failure cause, development of formal guidance for addressing and investigating intermittent MOV problems, and an event review with Operations personnel. This report is being submitted pursuant to the requirements of 10CFR50.73(a)(2)(v).

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Limerick Generating Station, Unit 1	05000 352	97	-- 011 --	0	2 OF 3

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

Unit Conditions Prior to the Event:

At the time of discovery, Unit 1 was in Operational Condition 1 (Power Operation) at 100% power level.

Description of the Event:

On 10/25/97, the Unit 1 HPCI turbine exhaust line isolation valve, HV-055-1F072, failed to go fully closed during an increased frequency surveillance test. Following an appropriate waiting period, the valve was successfully cycled full open and then stroked fully closed. No action was needed outside of the control room to make the valve function properly. Shift Operations declared the valve inoperable at that time due to its failure to stroke fully closed on the first attempt and failure to meet its Technical Specification required stroke time. Operations personnel closed and de-energized the HV-055-1F072 valve, in accordance with Technical Specification 3.6.3 requirements for an inoperable Primary Containment Isolation Valve (PCIV).

Diagnostic testing was performed on the valve, including the use of VOTES test equipment. The failure could not be reproduced, nor could a definitive root cause be determined for the valve failure to stroke on the first attempt. The valve's torque switch setting was increased within analyzed limits and the motor control center was inspected. HV-055-1F072 was then declared operable since the valve operated satisfactorily during all post failure testing without any evidence of unusual behavior, impending failure, or degradation.

A four-hour notification was made to the NRC at 1627 hours on 10/25/97, in accordance with the requirements of 10CFR50.72(b)(2)(iii)(D). We note that the information in the NRC event log for this notification contains an inaccuracy. The event log states that "The licensee noted that the valve tripped on thermal overload after waiting approximately 6 minutes." The Limerick Unified Logs describe the situation as "the valve appeared to torque out." This valve does not have thermal overload protection.

This report is being submitted pursuant to the requirements of 10CFR50.73(a)(2)(v), for an event that alone could have prevented fulfillment of the safety function of a system needed to mitigate the consequences of an accident.

Analysis:

The consequences of this event were minimal. There were no actual consequences because no radioactive material was released and no events occurred requiring HPCI System response while it

was rendered inoperable. The potential consequences were small because HCPI was inoperable for three days, during the evaluation of the valve failure, which is less than 25% of the allowed out of service time per Technical Specification 3.5.1.

The consequences of the failure of HV-055-1F072 to fully close on the first attempt were minimal. This valve is defined in the Limerick UFSAR as a remote manually operated valve. The valve has no automatic actuation functions in either direction. Manually closure of the valve is only directed in two transient response procedures, which would be implemented long after the first ten minutes of any postulated event. Manual closure of the valve was able to be accomplished on all subsequent attempts, with no assistance outside of the control room.

Cause of the Event:

The most probable cause of the valve failure is an intermittent mechanical interaction within the valve internal components or an intermittent degraded power supply created by a malfunctioning electrical component.

Corrective Actions:

The HV-055-1F072 torque switch setting was increased within analyzed limits and an MCC critical component inspection was performed. Planned corrective actions include:

- Increased frequency surveillance testing of HV-055-1F072,
- Corrective maintenance tasks to inspect the valve's internals, and
- An event review with Operations personnel.

Previous Similar Occurrences:

There have been three previous occurrences of the HV-055-1F072 failing to stroke closed on the first attempt. In all three prior cases, the HPCI System was already inoperable for preplanned activities. This trend has been evaluated as part of the site investigation for this event and, in part, led to the planned corrective actions.