

## 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)

Hope Creek Generating Station

DOCKET NUMBER (2)

05000354

PAGE (3)

1 OF 5

TITLE (4)

Unplanned High Pressure Coolant Injection System Inoperability Due to a Stuck Open  
Extended Containment Boundary Valve

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	30	96	96	-- 030 --	00	01	29	97	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	20.2201(b)			20.2203(a)(2)(v)			50.73(a)(2)(i)(B)	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)		X	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

Paul Duke, Senior Staff Engineer

TELEPHONE NUMBER (Include Area Code)

(609) 339-1466

## 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
B	BJ	V	R344	Y					

## SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE).	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
	X				

## ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On December 30, 1996, the High Pressure Coolant Injection (HPCI) system was declared inoperable due to closure of the manual isolation valve in the HPCI barometric condenser condensate pump discharge line. The valve was closed to assure Primary Containment operability after a check valve which forms part of the HPCI system extended containment boundary was found to be stuck open.

The significance of this event was minimal in that the remaining emergency core cooling systems were operable and able to fulfill the HPCI accident mitigation function. In addition, the HPCI suction valve remained operable, fulfilling the containment isolation function. Corrective actions included the repair of the check valve and HPCI system restoration.

At 1733 on December 30, 1996 a four hour report to the NRC was made pursuant to 10CFR50.72(b)(2)(iii). This event is being reported pursuant to 10CFR50.73(a)(2)(v)(D).

9702050363 970129  
PDR ADDCK 05000354  
S PDR

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Hope Creek Generating Station	05000354	96	-- 030	-- 00	2 OF 5

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

PLANT AND SYSTEM IDENTIFICATION

General Electric - Boiling Water Reactor (BWR/4)  
High Pressure Coolant Injection System - EIIS Identifier {BJ}

IDENTIFICATION OF OCCURRENCE

Event date: 12/30/96  
Discovery date: 12/30/96  
Problem Report: 961230110

CONDITIONS PRIOR TO OCCURRENCE

The plant was in OPERATIONAL CONDITION 1 (POWER OPERATION) at 100% of rated thermal power. There were no other structures, systems, or components that were inoperable at the beginning of the event that contributed to the event.

DESCRIPTION OF OCCURRENCE

On November 30, 1996, during scheduled In-Service Testing (IST) of the High Pressure Coolant Injection (HPCI) system valves, the HPCI barometric condenser condensate pump discharge check valve 1BJV-027 was determined to be stuck open. An Action Request was initiated in accordance with the Corrective Action Program to identify the failure and initiate corrective maintenance.

During a review of the Hope Creek Updated Final Safety Analysis Report (UFSAR) on December 30, 1996, it was discovered that 1BJV-027 is identified as an extended containment boundary valve for the HPCI system. Since the extended containment boundary was not in conformance with the description in the UFSAR, Technical Specification (TS) 3.6.1, Primary Containment Integrity, was entered until the barometric condenser condensate pump discharge line was manually isolated.

As a result of the pump isolation, the HPCI system was declared inoperable and a 14 day Limiting Condition for Operation (LCO) was entered pursuant to TS 3.5.1. A four hour notification was made at 1733 pursuant to 10CFR50.72(b)(2)(iii) for the inoperability of the single train safety system.

The check valve was repaired, the IST was successfully completed, the system was restored to operable status, and the LCO was exited on December 31, 1996. This report is being submitted pursuant to 10 CFR 50.73(a)(2)(v) as an event or condition that alone could have prevented the fulfillment of a safety function.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Hope Creek Generating Station	05000354	96	-- 030	-- 00	3 OF 5

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

ANALYSIS OF OCCURRENCE

The HPCI suction line from the suppression pool is isolated by a single, remote manually actuated, motor operated valve. The HPCI system is designed as a closed system outside primary containment. In the case of a single failure, the closed system accommodates the failure by being an extension of the containment. The containment isolation valve on the HPCI suction line is normally closed. However, it automatically opens upon low condensate storage tank (CST) level (the normal HPCI pump suction source) and on high suppression pool level to support the ECCS function.

Isolation provisions for the extended containment boundaries are identified in UFSAR Table 6.2-26. Table 6.2-26 also provides the results of evaluations of check valves and safety/relief valves to maintain the extended containment boundary. UFSAR Figure 6.2-46 depicts the limits of the extended containment boundary for the HPCI system.

Valve 1BJV-027 is identified as an extended containment boundary valve for the HPCI system on Figure 6.2-46. However, the list of extended containment boundary valves in Table 6.2-26 does not include 1BJV-027. Based on information in UFSAR Table 6.2-26, an upstream check valve in the same line, 1FD-032, was included in the IST program as an extended containment boundary valve for the HPCI system. Subsequent evaluation has determined that UFSAR Figure 6.2-46 is correct and that 1BJV-027, not 1FD-032, should be included in the IST program.

Entry into TS 3.6.1 was a conservative measure taken after discovery of the degraded condition while the conflicting UFSAR information was evaluated.

APPARENT CAUSE OF OCCURRENCE

The HPCI system was declared inoperable due to manual isolation of the barometric condenser condensate pump discharge line. The line was isolated to assure Primary Containment operability after a check valve which forms part of the HPCI system extended containment boundary was found to be stuck open.

The failure of the check valve was due to a small amount of corrosion products in the valve body which caused the valve plug to stick in the open position.

The delay in evaluating the failure of 1BJV-027 was due to errors in the HPCI system valve IST procedure. The procedure errors were caused by an incomplete review of the UFSAR during the procedure revision process.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Hope Creek Generating Station	05000354	96	-- 030	-- 00	4 OF 5

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

ASSESSMENT OF SAFETY CONSEQUENCES

During the period of HPCI unavailability associated with this event, the Core Spray, Low Pressure Coolant Injection, Automatic Depressurization, and Reactor Core Isolation Cooling systems remained operable. These systems were available to mitigate the consequences of an accident. Variations in plant operating mode would not have affected the significance of this event.

The HPCI system is considered a single train safety system; therefore any unplanned inoperability constitutes a condition that alone could have prevented the fulfillment of a safety function. However, the significance of this event was minimal since remaining emergency core cooling systems were operable and able to fulfill the HPCI accident mitigation function. Failure of 1BJV-027 in the open position did not affect the HPCI system's ability to perform its design function.

While the HPCI system extended containment boundary was degraded, the HPCI pump suction isolation valve 1BJHV-F042 remained operable. In addition, the HPCI pump suction line terminates below the minimum suppression pool water level. This provides a water seal that would have limited the release potential.

PREVIOUS OCCURRENCES

A review of Hope Creek LERs over the last two years revealed LERs 95-008, 95-011, 95-018, 95-021, 95-025, 96-011 and 96-016 involving instances of unplanned HPCI inoperability. The details of these events differed from this event such that the root causes and corrective actions were not applicable to this event and could not have prevented a recurrence.

CORRECTIVE ACTIONS

1. The failed check valve was repaired and the HPCI system was returned to service on December 31, 1996. Additional corrective actions will be determined upon completion of the evaluation of the check valve failure.
2. The Hope Creek UFSAR was reviewed to ensure that the testing of extended containment boundary valves meets the requirements of ASME Section XI. This review did not identify any other omissions from the IST program for extended containment boundary valves.
3. Discrepancies in the Hope Creek UFSAR related to the HPCI system extended containment boundary will be corrected. This action will be completed by July 31, 1997.

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

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
Hope Creek Generating Station	05000354	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	5 OF 5
		96	-- 030 --	00	

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

CORRECTIVE ACTIONS (continued)

4. An IST program change has been initiated to correctly identify the HPCI system extended containment boundary valves. The change will be incorporated into the next revision of the Inservice Test Program Manual, currently scheduled for March 31, 1997.
5. The lessons learned from this event will be incorporated into Station Qualified Reviewer and 10 CFR 50.59 refresher training for appropriate personnel. This action will be completed by February 28, 1997.
6. The HPCI system valve IST procedure will be revised to correctly identify the HPCI system extended containment boundary valves before the next planned performance, currently scheduled for March 2, 1997.