NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/85

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Hope Creek Generating Station	0 5 0 0 0 3 5 4	1 OF 0 4

TITLE (4)
Inadvertent HPCI System Initiation

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 NAMES	DOCKET NUMBER(S)
										0 5 0 0 0
0 7	2 0	8 6	8 6	0 4 6	0 0	0 8	1 4	8 6		0 5 0 0 0

OPERATING MODE (9)	2	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	0 0 3	20.402(b)	20.405(c)	X 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 (Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
		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
R. G. Birley	AREA CODE 6 0 9 — 3 3 9 - 5 2 3 8

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 fifteen single-space typewritten lines) (16)

The event occurred when the High Pressure Coolant Injection (HPCI) system received an invalid Level 2 initiation signal from "C" Channel Reactor Vessel low water level instrumentation. All auxiliary equipment actuated as designed, but the turbine remained in the tripped condition due to a Reactor Vessel high water level signal which was also invalid. After verifying that the level signals were invalid, the logic was reset and all system equipment returned to the standby condition. The root cause of this event was a hydraulic transient within the common reference sensing line initiated by personnel stepping on the piping in conjunction with apparent entrapped air. Corrective action consisted of labeling sensing lines to warn personnel of the ramifications of any physical disturbance and the backfilling of the piping to remove trapped air.

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

PLANT AND SYSTEM IDENTIFICATION

General Electric - Boiling Water Reactor (BWR/4)
High Pressure Coolant Injection (HCPI) System (EIIS Designator:BJ)

IDENTIFICATION OF OCCURRENCE

Inadvertent HPCI System Initiation
Event Date: 7/20/86
Event Time: 1438
This LER was initiated by Incident Report No. 86-143

CONDITIONS PRIOR TO OCCURRENCE

Plant in OPERATIONAL CONDITION 2. Reactor critical with a power of 3.0% and vessel pressure at 956 psig. Low power testing underway in accordance with the power ascension program.

DESCRIPTION OF OCCURRENCE

This event consisted of a High Pressure Coolant Injection (HPCI) system actuation from an invalid Reactor Vessel low water Level 2 signal from "C" Channel LOCA instrumentation. All system auxiliary equipment actuated and the steam supply valve opened as designed but the HPCI Turbine remained in the tripped condition due to a Reactor Vessel high water Level 8 signal which was also invalid. After verifying that the level signals were invalid, the initiation logic was reset and all system equipment returned to the standby condition. Injection into the vessel did not occur. An investigation was initiated to determine the cause of the actuation.

ANALYSIS OF OCCURRENCE

The HPCI system initiation and trip logic derives it's inputs from the wide range, "A" and "C" Loss of Coolant Accident (LOCA) logic level instrumentation. This system actuation was caused by a Level 2 trip output from level transmitters of the "C" LOCA logic. An investigation, performed by System Engineering, determined that personnel in the Drywell at the time of the event were working in the area of the common reference sensing line for the "C" channel instruments. The location is such that, to gain access, personnel were stepping on this line while climbing on the structural steel. Downward force applied to the piping causes the condensing chamber to be lowered approximately 1.5 inches. When the force is removed the chamber springs back to it's original location. The movement of this piping, coupled with apparent entrapped air, causes a hydraulic transient to be applied to the level transmitter differential pressure cells which results in wide fluctuations of the associated transmitter output signal.

ANALYSIS OF OCCURRENCE CONT'D

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

ANALYSIS OF OCCURRENCE CONT'D

The fluctuation is such that the Level 2 and Level 8 trip points were reached on the "C" Channel instruments even though the Reactor level was within the normal band.

The area in which this reference line is routed is not normally required to be entered. Routine operations need not be done in this location. Since the work being performed by the Insulators was an infrequent activity, modifications to the structure were deemed unnecessary at this time.

The root cause of this event was a hydraulic transient within the common reference sensing line initiated by personnel stepping on the piping located inside the Drywell in conjunction with apparrent entrapped air in the lines. The public health and safety was not compromised by this event. This LER is being submitted pursuant to 10CFR50.73(a)(2)(iv).

CORRECTIVE ACTION

As a result of this incident, all instrument sensing lines have been labeled to warn personnel of the ramifications of any physical disturbance of these lines. In addition, all sensing lines for critical level instruments were backfilled to remove entrapped air. Although not directly related to this event, other corrective actions have been taken as a result of inadvertant LOCA actuations. A summary of those actions is as follows:

- Critical level instruments located in the Reactor Building have been color coded for identification.
- Protective cages have been installed around critical instrument racks.
- Insulation was installed on the sensing line between the condensing chamber and the Reactor Vessel to preclude condensation in the pipe.
- A test program has been developed that installed spare transmitters to monitor any, future perturbations that occur within the sensing lines

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

CORRECTIVE ACTIONS CONT'D

o A mock up of an instrument rack has been constructed to permit hands on training of I&C Technicians. This training is currently in progress.

Sincerely,

R. S. Salvesen
General Manager -
Hope Creek Operations

PSE&G

Public Service Electric and Gas Company P. O. Box A Hancocks Bridge, New Jersey 08038

Hope Creek Generating Station

August 14, 1986

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Dear Sir:

HOPE CREEK GENERATING STATION
DOCKET NO. 50-354
UNIT NO. 1
LICENSEE EVENT REPORT 86-046-00

This Licensee Event Report is being submitted pursuant to the requirements of 10CFR50.73(a)(2)(iv).

Sincerely yours,

R. S. Salvesen
General Manager
Hope Creek Operations

KMH:bar

SORC Mtg. 86-197
Attachment

C Distribution

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