

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Hope Creek Generating Station	DOCKET NUMBER (2) 0 5 0 0 0 3 5 4 1	PAGE (3) OF 0 4
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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)																																																						
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<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:15%;">OPERATING MODE (9)</td> <td style="width:15%;">2</td> <td colspan="10">THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)</td> </tr> <tr> <td>POWER LEVEL (10)</td> <td>< 1 %</td> <td>20.402(b)</td> <td>20.408(e)</td> <td><input checked="" type="checkbox"/></td> <td>50.73(a)(2)(iv)</td> <td>73.71(b)</td> </tr> <tr> <td></td> <td></td> <td>20.408(a)(1)(i)</td> <td>50.36(e)(1)</td> <td></td> <td>50.73(a)(2)(v)</td> <td>73.71(e)</td> </tr> <tr> <td></td> <td></td> <td>20.408(a)(1)(ii)</td> <td>50.36(e)(2)</td> <td></td> <td>50.73(a)(2)(vii)</td> <td>OTHER (Specify in Abstract below and in Text, NRC Form 360A)</td> </tr> <tr> <td></td> <td></td> <td>20.408(a)(1)(iii)</td> <td>50.73(a)(2)(i)</td> <td></td> <td>50.73(a)(2)(viii)(A)</td> <td></td> </tr> <tr> <td></td> <td></td> <td>20.408(a)(1)(iv)</td> <td>50.73(a)(2)(ii)</td> <td></td> <td>50.73(a)(2)(viii)(B)</td> <td></td> </tr> <tr> <td></td> <td></td> <td>20.408(a)(1)(v)</td> <td>50.73(a)(2)(iii)</td> <td></td> <td>50.73(a)(2)(ix)</td> <td></td> </tr> </table>												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)	< 1 %	20.402(b)	20.408(e)	<input checked="" type="checkbox"/>	50.73(a)(2)(iv)	73.71(b)			20.408(a)(1)(i)	50.36(e)(1)		50.73(a)(2)(v)	73.71(e)			20.408(a)(1)(ii)	50.36(e)(2)		50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 360A)			20.408(a)(1)(iii)	50.73(a)(2)(i)		50.73(a)(2)(viii)(A)				20.408(a)(1)(iv)	50.73(a)(2)(ii)		50.73(a)(2)(viii)(B)				20.408(a)(1)(v)	50.73(a)(2)(iii)		50.73(a)(2)(ix)	
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LICENSEE CONTACT FOR THIS LER (12)

NAME R. G. Birley	TELEPHONE NUMBER
	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)

<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH DAY YEAR
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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 water level instrumentation. HPCI was not required to be operable at the time but, since the system was lined up in the automatic standby condition, all auxiliary equipment actuated as designed. The turbine remained in the tripped condition due to a valid Reactor Vessel high water level signal from other logic. After verifying that the low level signal was 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 sensing line 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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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104
EXPIRES 8/31/85

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
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Hope Creek Generating Station	0500035486	—	041	—	00	02	OF 04

TEXT (If more space is required, use additional NRC Form 368A's) (17)

PLANT AND SYSTEM IDENTIFICATION

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

IDENTIFICATION OF OCCURRENCE

Inadvertent HPCI System Initiation

Event Date: 7/15/86

Event Time: 1546

This LER was initiated by Incident Report No. 86-136

CONDITIONS PRIOR TO OCCURRENCE

Plant in OPERATIONAL CONDITION 2. Reactor critical with power <1.0% and vessel pressure at 145 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. HPCI was not required to be operable at the time but the system was lined up in the automatic standby condition. 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 valid Reactor Vessel high water Level 8 signal. After verifying that the low level signal was invalid, the initiation logic was reset and all system equipment returned to the standby condition. An investigation was initiated to determine the cause of the actuation.

ANALYSIS OF OCCURRENCE

The HPCI system initiation 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

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

ANALYSIS OF OCCURRENCE (CON'T)

differential pressure cells which results in wide fluctuations of the associated transmitter output signal.

The fluctuation is such that the Level 2 trip point was reached 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 HPCI system did not inject water into the vessel due to a Level 8 trip signal from the "A" LOCA channel level instrumentation. This high level trip is normal for the Reactor conditions that existed at the time of the event. The wide range transmitters are calibrated for normal Reactor operating pressure and temperature and the outputs do not employ compensation for any other system conditions.

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 apparent 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:

- o Critical level instruments located in the Reactor Building have been color coded for identification.
- o Protective cages have been installed around critical instrument racks.
- o Insulation was installed on the sensing line between the condensing chamber and the Reactor Vessel to preclude condensation in the pipe.

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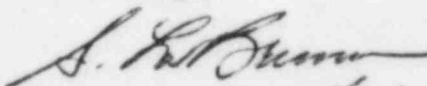
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TEXT (If more space is required, use additional NRC Form 366A's) (17)

CORRECTIVE ACTION (CON'T)

- o A test program has been developed that installed spare transmitters to monitor any futuer perturbations that occur within the sensing lines.
- 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 *for*
General Manager -
Hope Creek Operations

RWB:bar



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 86-041-00

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

Sincerely yours,

A handwritten signature in cursive script, appearing to read "R. S. Salvesen".

R. S. Salvesen *for.*
General Manager
Hope Creek Operations

KMH:bar

SORC Mtg. 86-197
Attachment

C Distribution