



Public Service Electric and Gas Company P.O. Box 236 Hancocks Bridge, New Jersey 08038  
Hope Creek Operations

February 6, 1991

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 91-001-00

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

Sincerely,

J.J. Hagan  
General Manager -  
Hope Creek Operations

RBC/

Attachment  
SORC Mtg. 91-019

C Distribution

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The Energy People

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LICENSEE EVENT REPORT																								
FACILITY NAME (1)										DOCKET NUMBER (2)				PAGE (3)										
HOPE CREEK GENERATING STATION										0	5	0	0	0	3	5	4	1	OF	4				
TITLE (4): ENGINEERED SAFETY FEATURES ACTUATION - PRIMARY CONTAINMENT ISOLATION DURING PERFORMANCE OF SURVEILLANCE TEST DUE TO MULTIPLE CAUSES																								
EVENT DATE (5)			LER NUMBER (6)				REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)														
MONTH	DAY	YEAR	YEAR	**	NUMBER	**	REV	MONTH	DAY	YEAR	FACILITY NAME(S)			DOCKET NUMBER(S)										
0	1	1	0	9	1	9	1	-	0	0	1	-	0	0	0	0	2	0	6	9	1			
OPERATING MODE (9)		5 THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR: (CHECK ONE OR MORE BELOW) (11)																						
		20.402(b)			20.405(c)			XX 50.73(a)(2)(iv)			73.71(b)													
POWER LEVEL	0	0	0	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													
		20.405(a)(1)(iii)			50.73(a)(2)(i)			50.73(a)(2)(viii)(A)			Abstract below													
		20.405(a)(1)(iv)			50.73(a)(2)(ii)			50.73(a)(2)(viii)(B)			and in Text)													
		20.405(a)(1)(v)			50.73(a)(2)(iii)			50.73(a)(2)(x)																
LICENSEE CONTACT FOR THIS LER (12)																								
NAME										TELEPHONE NUMBER														
Richard Cowles, Senior Staff Engineer - Technical										6	0	9	3	3	9	3	4	3	1					
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE NOTED IN THIS REPORT (13)																								
CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS?	CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS?															
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SUPPLEMENTAL REPORT EXPECTED? (14) YES					DATE EXPECTED (15)					MONTH	DAY	YEAR	////////											
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ABSTRACT (16)

On January 11, 1991 at 0125, an actuation of the Channel "B" Primary Containment Isolation System (PCIS) occurred during the performance of a monthly functional test of Channel "B" Emergency Core Cooling System (ECCS) reactor vessel level instrumentation. Followup investigation determined that a Channel "B" PCIS actuation signal was input during the surveillance at the same time that a sealed in isolation from the Nuclear Steam Supply Shutoff System (NS4) existed due to a previous RPS bus transfer from alternate to normal power. The concurrent existence of both signals satisfied the Channel "B" PCIS logic, and the required system actuations occurred. It was determined that the prerequisites of the ECCS functional test procedure did not require resetting of potentially sealed in isolation signals from the NS4 prior to initiating a PCIS signal. Additionally, a Nuclear Control Operator (NCO, PO licensed) did not reset the NS4 circuit as required by the RPS operating procedure following the RPS bus transfer and no indications exist to advise control room personnel when a single channel NS4 isolation signal is present. Corrective actions included modifying the ECCS functional test procedure to require the resetting of potentially sealed in NS4 isolation signals, counselling for the NCO who failed to reset the NS4 isolation per procedure, and evaluating the NS4 circuitry for a potential design change to add NS4 isolation signal indication.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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PLANT AND SYSTEM IDENTIFICATION

General Electric - Boiling Water Reactor (BWR/4)  
 Primary Containment Isolation System (EIIS Designation: JM)  
 Reactor Protection System (EIIS Designation: JC)

IDENTIFICATION OF OCCURRENCE

Engineered Safety Features Actuation - Primary Containment Isolation During Performance of Surveillance Test due to Multiple Causes

Event Date: 1/10/91

Event Time: 0125

This LER was initiated by Incident Report No. 91-006

CONDITIONS PRIOR TO OCCURRENCE

Plant in OPERATIONAL CONDITION 5 (Refueling), 3rd refueling outage in progress. Reactor defueled.

DESCRIPTION OF OCCURRENCE

On January 11, 1991 at 0125, control room personnel received indication of a Channel "B" Primary Containment Isolation System (PCIS) actuation, which resulted in the following system responses:

- 1) The Reactor Building Ventilation System tripped
- 2) The "B" Filtration, Recirculation, and Ventilation System (FRVS) unit started
- 3) Two Liquid Radwaste System (LRW) containment isolation valves closed
- 4) Two Torus Water Cleanup containment isolation valves closed

Immediate investigation determined that the PCIS initiation had occurred during the performance of an I&C surveillance procedure on the Channel "B" Emergency Core Cooling System (ECCS) reactor vessel level instrumentation. All system responses were verified and reset to a normal configuration. The Senior Nuclear Shift Supervisor (SNS3, SRO licensed) initiated a four hour non-emergency report per 10CFR50.72 due to the PCIS initiation being classified as an Engineered Safety Features (ESF) actuation.

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ANALYSIS OF OCCURRENCE

At 0052, the Channel "B" Reactor Protection System (RPS) bus was de-energized during a manual transfer from the alternate to normal power source. This action resulted in a momentary loss of power to the Channel "B" Nuclear Steam Supply Shutoff System (NS4) logic, including initiation of an NS4 "manual isolation" signal. Following re-energization of the RPS bus (approximately 3 seconds after initiation), alarms for the various Channel "B" RPS and NS4 trips were acknowledged, however, the NS4 manual isolation logic "seal in" was not manually reset, as required by the bus transfer procedure (no indication is present when the circuit is sealed in). With the Channel "B" NS4 isolation logic sealed in, half of the Channel "B" PCIS logic was satisfied.

A Controls Technician received authorization from the control room to begin performing a functional test of Channel "B" Emergency Core Cooling System (ECCS) reactor vessel instrumentation at about 0100. The functional test procedure required, as a prerequisite, resetting the PCIS isolation logic to ensure no "hidden" trips exist, however, the procedure did not require resetting the NS4 isolation logic. At 0125, when the channel was placed in a tripped condition per the test procedure, concurrent with the NS4 manual isolation logic still being set, the Channel "B" PCIS logic was satisfied, and the previously described system responses occurred.

APPARENT CAUSE OF OCCURRENCE

A variety of factors contributed to this incident. The functional test procedure, while having a step to reset the PCIS logic prior to performing the test, did not have a step to reset the NS4 logic. Additionally, the NCO did not reset the Channel "B" NS4 isolation as required by the RPS bus transfer procedure, and there is no indication to alert control room personnel when a single channel NS4 manual isolation logic is set.

PREVIOUS OCCURRENCES

Four previous occasions of PCIS isolations due to hidden half isolation signals have occurred at Hope Creek (Ref: LERs 87-005, 87-024, 87-045, 87-046, and 90-032). Corrective actions have included procedural changes, personnel counselling, and design changes to the PCIS circuitry to provide indication when a half PCIS isolation signal is present.

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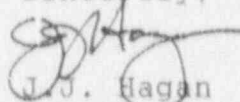
SAFETY SIGNIFICANCE

This event posed minimal potential safety consequence. All Channel "B" PCIS functions occurred as required on receipt of the isolation signal, and immediately after verification, were reset to a normal configuration. In the event that a scenario developed during the course of this incident that required containment isolation, all Channel "B" PCIS isolation functions had already occurred. No other PCIS or NS4 channels were affected or impaired by this incident.

CORRECTIVE ACTIONS

- 1) The functional test procedure for the ECCS reactor vessel level instrumentation has been modified to include a step in the prerequisites to ensure NS4 isolation signals have been reset prior to performance of the test. All similar procedures potentially affecting PCIS and/or NS4 isolation logic will be reviewed for similar enhancements.
- 2) The NCO who did not reset the NS4 isolation logic circuitry following the RPS bus was counselled with regards to his contribution to this event.
- 3) Systems Engineering will assess the feasibility of installing "seal in" indication for all NS4 channels, and initiate a design change, if deemed appropriate.
- 4) This report will be forwarded to the Nuclear Training Department for inclusion in licensed operator requalification programs and Controls Technician continuing training to increase awareness of the potential for this type of incident.

Sincerely,



J.J. Hagan  
General Manager -  
Hope Creek Operations

RBC/

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