PSE&G

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

Hope Creek Generating Station

May 3, 1994

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 94-003-00

This Licensee Event Report is being submitted pursuant to the requirements of 10CFR 50.73(a)(2)(iv).

Sincerely,
W.P. O'Malley for R.J. Hovey
R.J. Hovey
General Manager -
Hope Creek Operations

LAA/

Attachment
SORC Mtg. 94-032
C Distribution

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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 System Actuation - Loss of shutdown cooling due Nuclear Steam Supply Shutoff System actuation on false high pressure signal

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 4	0 5	9 4	9 4	- 0 0 3	- 0 0	0 5	0 4	9 4		

OPERATING (9) MODE		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR: (CHECK ONE OR MORE BELOW) (11)			
5		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 Abstract below and in Text)
		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
Lou Aversa, Senior Staff Engineer - Technical	6 0 9 3 3 9 3 3 8 6

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE NOTED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS?	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS?
				no					

SUPPLEMENTAL REPORT EXPECTED? (14)	YES		NO	x	DATE EXPECTED (15)	MONTH	DAY	YEAR

ABSTRACT (16)

On Tuesday, April 5, 1994, at 1616 hours, a loss of shutdown cooling occurred due to an inadvertent high reactor pressure isolation signal. All systems and components functioned as required for the existing plant conditions. Control room personnel verified all automatic actions were completed and instructed Instrument and Controls technicians (I&C techs) to investigate the cause of the inadvertent pressure signal. As technical specification did not require the logic to be operable under current plant conditions, the isolation signal was bypassed to permit restoration of shutdown cooling while troubleshooting was conducted. The I&C techs reported back that the pressure transmitters associated with the logic were valved out of service. They also believed that with the transmitters isolated, thermal expansion of the water in the isolated transmitter may have caused the spurious high pressure signal. It was decided to vent the transmitter after which the indicated pressure returned to a nominal value. As the cause of the malfunction was understood it was decided to return the isolation logic to normal operation. When the I&C techs cleared the bypassed isolation logic a second isolation occurred. This was due to the logic being placed in service without first resetting the logic. Control Room personnel reset the isolation logic and returned shutdown cooling to service. The root cause of this event was procedural inadequacy. A contributing factor to the second isolation was an inadequate troubleshooting plan. Procedures will be revised to ensure the transmitters are returned to service prior to the isolation logic being restored.

PLANT AND SYSTEM IDENTIFICATION

General Electric - Boiling Water Reactor (BWR/4)
Reactor Water Clean Up System(BG) EEIS Identifier CE
Reactor Water Sample System (RC) EEIS Identifier KN

IDENTIFICATION OF OCCURRENCE

TITLE (4): Engineered Safety System Actuation - Loss of shutdown cooling due Nuclear Steam Supply Shutoff System actuation on false high pressure signal

Event Date: 4/05/94
Event Time: 1616
This LER was initiated by Incident Report No. 94-076

CONDITIONS PRIOR TO OCCURRENCE

Plant in OPERATIONAL CONDITION 5 (REFUEL)
Reactor Power 0% of rated.

DESCRIPTION OF OCCURRENCE

On Tuesday, April 5, 1994, at 1616 hours, a loss of shutdown cooling occurred due to an inadvertent high reactor pressure isolation signal. All systems and components functioned as required for the existing plant conditions. Control room personnel verified all automatic actions were completed and instructed Instrument and Controls technicians (I&C techs) to investigate the cause of the inadvertent pressure signal. As technical specification did not require the logic to be operable under current plant conditions, the isolation signal was bypassed to permit restoration of shutdown cooling while troubleshooting was conducted. The I&C techs reported back that the pressure transmitters associated with the logic were valved out of service. They also believed that with the transmitters isolated, thermal expansion of the water in the isolated transmitter may have caused the spurious high pressure signal. It was decided to vent the transmitter after which the indicated pressure returned to nominal values. As the cause of the malfunction was understood it was decided to return the isolation logic to normal operation. When the I&C techs cleared the bypassed isolation logic a second isolation occurred. This was due to the logic being placed in service without first resetting the logic. Control Room personnel reset the isolation logic and returned shutdown cooling to service.

ANALYSIS OF OCCURRENCE

Previous to this event the plant had been in operational condition 5 (REFUEL) with the reactor cavity flooded and the spent fuel pool gates removed. In this condition the reactor low level and high pressure isolation interlocks are defeated to avoid spurious shutdown cooling isolations. When the fuel pool gates were installed and cavity drain

ANALYSIS OF OCCURRENCE (Con't)

down commenced the isolation functions were restored, however, the transmitters associated with the high reactor pressure permissive were not. Due to other outage activities reactor building ventilation was secured and the accompanying rise in room temperature resulted in thermal expansion of the water in the isolated pressure transmitter and the invalid isolation actuation.

As technical specifications does not require these instruments to be operable in mode 4 or 5 it was decided to bypass the interlocks and defeat the isolation signal to enable restoration of shutdown cooling while troubleshooting was performed for the above problem. The troubleshooting was performed under the guidance of a functional test for the isolation logic. During performance of the functional test it was confirmed that the isolation was coming from the out of service reactor pressure transmitter, which provides the 82 PSIG isolation signal. The pressure transmitter was vented and pressure indication returned to a nominal value. When the isolation bypass was then returned to the normal position a second isolation of shutdown cooling occurred. A logic reset had been attempted prior to venting of the transmitter. When the transmitter was vented, the trip unit indication returned to normal; however, the logic remained in the trip condition as the trip input seals in. The isolation logic was again reset and shutdown cooling was returned to service.

The subsequent investigation of the event determined that the Operation department procedure used for restoration of the shutdown cooling interlocks failed to address restoration of the transmitters. The procedure only verified that no trip signals were present prior to resetting the logic and clearing the bypass. This allowed the logic to be activated without the transmitters in service as the sensed pressure at the time was below the trip point. The transmitters are normally restored to service prior to entry into modes 1, 2 or 3 as this is when technical specifications requires the function to be operable. The transmitters are under the control of an I&C department procedure which controls restoration of transmitters prior to mode changes. There is no reference between the procedures to coordinate the restoration of this logic and the transmitters.

APPARENT CAUSE OF OCCURRENCE

The root cause of this event is a procedural deficiency. Procedural controls for restoration of the logic channel did not address restoration of the pressure transmitter. The instrument rack procedure also failed to address the issue of thermal expansion when instruments are isolated.

A contributing factor to the second isolation is an inadequate troubleshooting plan as no instructions were provided to reset the logic following restoration of the pressure transmitter prior to removing the logic bypass.

PREVIOUS OCCURRENCES

There have been a total of four previous occurrences of a loss of shutdown cooling. (see LER 89-005-00, 89-022-00, 92-014-00, and 94-001-00).

SAFETY SIGNIFICANCE

This incident posed minimal safety significance. The system operated per design to isolate shutdown cooling upon receipt of the appropriate signals.

CORRECTIVE ACTIONS

1. The Operations department procedure used to restore the shutdown cooling isolations will be revised to include steps ensuring the transmitters associated with the isolation logic are restored prior to resetting the logic.

2. I&C procedures for the instrument racks will be revised to address the effects of thermal expansion when pressure transmitters are isolated.

3. The improper sequence of steps utilized in the troubleshooting for instrument restoration will be discussed with I&C and Operations personnel.

Sincerely,

L. P. O'Malley for R. J. Hovey

R.J. Hovey
General Manager -
Hope Creek Operations

LAA/
SORC Mtg. 94-032
Recommended approval: Yes