PSEG

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

Hope Creek Generating Station

DATE June 24, 1992

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 92-006-00

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

Sincerely,

J.J. Hagan
General Manager -
Hope Creek Operations

LLA/

Attachment
SORC Mtg. 92-046
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 5

TITLE (4): Reactor Shutdown to comply with Technical Specification 3.6.1.1, due to Failure of Suppression Chamber to Drywell Vacuum Breakers.

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 5	2 6	9 2	9 2	- 0 0 6	- 0 0	0 6	2 4	9 2		

OPERATING (9) MODE	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR: (CHECK ONE OR MORE BELOW) (11)			
POWER LEVEL %	1 0 0	20.402(b)	20.405(c)	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)
		20.405(a)(1)(iii)	XX 50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
		20.405(a)(1)(iv)	XX 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
Louis [illegible]rsa, 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 NRPDS?	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRPDS?
B	BF	VACB	G202	Yes					

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

ABSTRACT (16)

On 5/25/92 at 1000, Operations department personnel declared the Suppression Chamber inoperable based on the results of an 18 month surveillance which measures the change in Delta pressure between the Drywell and Suppression Chamber air space. The SNSS (Senior Nuclear Shift Supervisor - SRO Licensed) declared Primary Containment Inoperable and entered Technical Specification 3.6.1.1 which requires restoration of Primary Containment within 1 hour or place the unit in HOT SHUTDOWN within the following 12 hours. An Unusual Event was declared at 1145 due to loss of Primary Containment Integrity IAW the Event Classification Guide. Operations department Personnel conducted a check of the Suppression Chamber to Drywell Vacuum breakers to verify integrity of the position indication of the valves and re-performed the leak down test. A reactor shutdown was commenced as the leak down test was repeated with similar results to those initially obtained. The plant was shutdown at 2215 by the initiation of a manual scram at approximately 20% power. All plant systems and components operated as expected. The Unusual Event was terminated at 0615 on 5/27/92, after the plant had achieved Cold Shutdown conditions. The test failure was due to leakage through 3 Suppression Chamber to Drywell Vacuum breakers. The valves were repaired and the bypass leakage test was performed satisfactorily.

PLANT AND SYSTEM IDENTIFICATION

General Electric - Boiling Water Reactor (BWR/4)
Containment Suppression Chamber to Drywell Vacuum Breakers EIIS Designator BF

IDENTIFICATION OF OCCURRENCE

TITLE: Reactor Shutdown to comply with Technical Specification 3.6.1.1, due to Failure of Suppression Chamber to Drywell Vacuum Breakers.

Event Date: 5/26/92
Event Time: 1700 hrs
This LER was initiated by Incident Report No. 92-094

CONDITIONS PRIOR TO OCCURRENCE

Plant in OPERATIONAL CONDITION 1 (Power Operation)
Reactor Power 100% of rated, 1110 MWe.

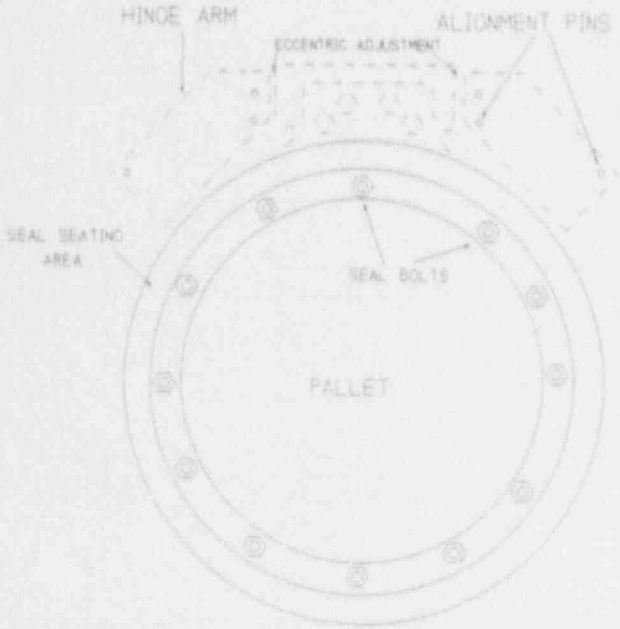
DESCRIPTION OF OCCURRENCE

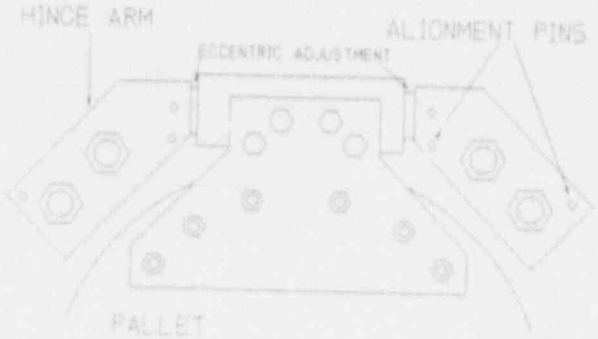
On 5/25/92 at 1000, Operations department personnel declared the Suppression Chamber inoperable based on the results of an 18 month surveillance which measures the change in Delta pressure between the Drywell and Suppression Chamber air space. The SNSS (Senior Nuclear Shift Supervisor - SRO Licensed) declared Primary Containment Inoperable and entered Technical Specification 3.6.1.1 which requires restoration of Primary Containment within 1 hour or place the unit in HOT SHUTDOWN within the following 12 hours. An Unusual Event was declared at 1145 due to loss of Primary Containment Integrity IAW the Event Classification Guide. Operations department Personnel conducted a check of the Suppression Chamber to Drywell Vacuum breakers to verify integrity of the position indication of the valves and re-performed the leak down test. A reactor shutdown was commenced as the leak down test was repeated with similar results to those initially obtained. The plant was shutdown at 2215 by the initiation of a manual scram at approximately 20% power. All plant systems and components operated as expected. The Unusual Event was terminated at 0615 on 5/27/92, after the plant had achieved Cold Shutdown conditions.

ANALYSIS OF OCCURRENCE

The Suppression Chamber to Drywell Vacuum breakers are designed to allow non condensable gases to return to the drywell during the blowdown phase of a Design Basis Accident (DBA). The valves also act as a boundary between the Drywell and Suppression Chamber air space to ensure steam from the drywell will pass into the suppression chamber water volume and be condensed limiting the Drywell pressure rise following a DBA to less than the design limit of 62.4 PSIG. The valves are tested monthly for position indication verification and free movement, and are tested on an 18 month frequency as part of the overall bypass leakage surveillance.

Testing performed on 5/26/92 indicated bypass leakage was present but the actual path of the leakage could not be determined. Once the unit was placed in shutdown and the drywell purged, an entry into the Suppression Chamber was made to determine the location of the leakage. Three Suppression Chamber to Drywell Vacuum Breakers, "F", "G" and "H" were identified as having leakage as air flow passing through the valves was audible. The "G" vacuum breaker seal was replaced terminating the leakage through the valve. The "F" and "H" vacuum breaker seals were replaced but the leakage through these two valves continued. Further investigation revealed that the valve pallets were misaligned, not allowing the seal to properly seat. When the valves were disassembled, the alignment pins for the hinge arm, which maintains the alignment of the pallet, were found sheared. Maintenance Department Personnel replaced the hinge alignment pins and adjusted the pallet to attain proper seating of the seal. When the valves were reinstalled, leakage through the valve persisted. Maintenance personnel then readjusted the seal bolting to attain a satisfactory seal.





ANALYSIS OF OCCURRENCE

A review of the previously performed bypass leakage surveillances did not reveal any adverse trends which would have projected a failure at this time. The surveillance test had been completed successfully on 9/17/87, 3/13/89 and 9/15/90. A review of the work order history did not indicate that any work on the valves, other than limit switch adjustments, had been performed. A valve which had been inspected during Refuel outage 3 as a basis for extending the EQ for the valves did not indicate any similar problems to those found on the "F" and "H" valves. Data collected during disassembly was insufficient to perform an assessment of the cause of the misalignment.

APPARENT CAUSE OF OCCURRENCE

Three probable causes have been identified for the increased leakage through the vacuum breakers: seal alignment, seal aging and the pallet alignment. Also in 1988, the method of purging and inerting the Drywell and Suppression Chamber was revised to admit gas or air into the Suppression Chamber and exhaust via the drywell outlet valves. This method of purging and inerting increased the number of cycles the vacuum breakers experience and may be contributing factor to the failure. Increased monitoring of vacuum breaker operation during purge and inert evolutions will be performed as part of ongoing root cause investigation.

PREVIOUS OCCURRENCES

No previous occurrences of Suppression Chamber to Drywell vacuum breaker failures due to similar causes have occurred at Hope Creek.

SAFETY SIGNIFICANCE

This event posed minimal safety significance as the leakage was only slightly above acceptable limits. The Suppression Chamber Spray System was available and operable to condense steam that may have entered the Suppression Chamber air space for the period of time the vacuum breakers were inoperable.

CORRECTIVE ACTIONS

1. The inoperable Vacuum Breakers were repaired and the bypass leakage surveillance was completed satisfactorily.

2. Additional monitoring of vacuum breaker operation will be performed during evolutions which cycle the valves, such as purging and inerting of containment.

3. Engineering will evaluate the need to obtain additional data when the remaining valves are inspected during the next Refuel Outage.

Sincerely,

J.J. Hagan
General Manager -
Hope Creek Operations

LLA/

SORC Mtg. 92-046