PSEG Nuclear LLC
P.O. Box 236, Hancocks Bridge, New Jersey 08038-0236

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

LER 354/04-003-00
HOPE CREEK GENERATING STATION
FACILITY OPERATING LICENSE NO. NPF-57
DOCKET NO. 50-354

This Licensee Event Report entitled "Both Trains of Control Room Emergency Filtration (CREF) Declared Inoperable" is being submitted pursuant to the requirements of 10CFR50.73(a)(2)(v)(D).

Sincerely,

James Hutton
Plant Manager – Hope Creek

Attachment

BJT

C Distribution
LER File 3.7

IE22

NRC FORM 366 (7-2001)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 7-31-2004

Estimated burden per response to comply with this mandatory information collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

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4. TITLE

Both Trains of Control Room Emergency Filtration (CREF) Declared Inoperable

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
02	23	2004	2004	– 003	– 00	04	23	2004	FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE	1
10. POWER LEVEL	100

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)

	20.2201(b)		20.2203(a)(3)(ii)		50.73(a)(2)(ii)(B)		50.73(a)(2)(ix)(A)
	20.2201(d)		20.2203(a)(4)		50.73(a)(2)(iii)		50.73(a)(2)(x)
	20.2203(a)(1)		50.36(c)(1)(i)(A)		50.73(a)(2)(iv)(A)		73.71(a)(4)
	20.2203(a)(2)(i)		50.36(c)(1)(ii)(A)		50.73(a)(2)(v)(A)		73.71(a)(5)
	20.2203(a)(2)(ii)		50.36(c)(2)		50.73(a)(2)(v)(B)		OTHER Specify in Abstract below or in NRC Form 366A
	20.2203(a)(2)(iii)		50.46(a)(3)(ii)		50.73(a)(2)(v)(C)		
	20.2203(a)(2)(iv)		50.73(a)(2)(i)(A)	X	50.73(a)(2)(v)(D)		
	20.2203(a)(2)(v)		50.73(a)(2)(i)(B)		50.73(a)(2)(vii)		
	20.2203(a)(2)(vi)		50.73(a)(2)(i)(C)		50.73(a)(2)(viii)(A)		
	20.2203(a)(3)(i)		50.73(a)(2)(ii)(A)		50.73(a)(2)(viii)(B)		

12. LICENSEE CONTACT FOR THIS LER

NAME	TELEPHONE NUMBER (Include Area Code)
Brian Thomas, Licensing Engineer	856-339-2022

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
X	BI	STR	Z010	Y					

14. SUPPLEMENTAL REPORT EXPECTED				15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR
Y	YES (If yes, complete EXPECTED SUBMISSION DATE)		NO		06	30	2004

16. ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On February 23, 2004, at 0152 hours, a high delta pressure alarm was received for the 'A' and 'B' Station Service Water (SSW) strainers. The appropriate abnormal operating procedures were entered in response to the alarms. The high delta pressure condition was cleared on the 'B' SSW strainer ensuring the 'B' SSW loop remained operable. The 'A' SSW strainer high delta pressure condition remained. At 0212 hours, the 'A' SSW loop was declared inoperable, along with the 'A' Safety Auxiliary Cooling System (SACS) loop and the 'A' Control Room Emergency Filtration (CREF) train. The 'B' CREF train was inoperable for planned maintenance on the associated chiller. Technical Specification 3.0.3 was entered since both the 'A' and 'B' CREF trains were inoperable. A shutdown brief was conducted and the operating procedure for shutdown from rated power to cold shutdown was entered at 0305 hours. At 0407, shutdown of the unit commenced. At 0424, the unit shutdown was halted at 94.5% Reactor power when the 'A' CREF train was returned to operable status and TS 3.0.3 was exited.

The cause of this event is still under investigation and will be updated in the supplement of this LER. Preliminary investigation identified the failure of the 'A' SSW strainer was due to backing off of the restraining nut holding the main shaft that caused the strainer internals to lower and come in contact with the rim of the strainer body. Additionally, the preliminary investigation identified a contributing cause was incorrect decision making in permitting emergent work in the work schedule and proceeding with planned maintenance. Corrective actions consist of changes to maintenance procedures, equipment operator rounds and the development of an operational risked based strategy for Operations personnel.

This event is being report in accordance with 10CFR50.73(a)(2)(v)(D), any event that could have prevented the fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident.

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NARRATIVE *(If more space is required, use additional copies of NRC Form 366A)* **(17)**

PLANT AND SYSTEM IDENTIFICATION

General Electric – Boiling Water Reactor (BWR/4)

Station Service Water (SSW) System – EIIS Identifier {BI}*
Safety Auxiliary Cooling System (SACS) {CC}*
Control Room Emergency Filtration (CREF) {VI}

* Energy Industry Identification System {EIIS} codes and component function identifier codes appear as {SS/CCC}

IDENTIFICATION OF OCCURRENCE

Event Date: February 23, 2004
Discovery Date: February 23, 2004

CONDITIONS PRIOR TO OCCURRENCE

The plant was in OPERATIONAL CONDITION 1 (POWER OPERATION) at approximately 100% Reactor Power at the time of the event. The 'C' Station Service Water (SSW) pump and traveling water screen were tagged for maintenance. The 'B' Control Room Emergency Filtration (CREF) train was removed from service for maintenance.

DESCRIPTION OF OCCURRENCE

On February 23, 2004, at 0152 hours, a high delta pressure alarm was received for the 'A' and 'B' Station Service Water (SSW) strainers {BI/STR}. The appropriate abnormal operating procedures were entered in response to the alarms. The high delta pressure condition was cleared on the 'B' SSW strainer ensuring the 'B' SSW loop remained operable. However, the 'A' SSW strainer high delta pressure condition remained. At 0212 hours, the 'A' SSW loop was declared inoperable, along with the 'A' Safety Auxiliary Cooling System (SACS) loop {CC/-} and the 'A' Control Room Emergency Filtration (CREF) train {VI/-}. At 0213, the 'A' strainer tripped on motor overload. Technical Specification 3.0.3 was entered since both the 'A' and 'B' CREF trains were inoperable. The 'B' CREF train had been removed from service prior to the event to perform maintenance on the chiller. The 'A' SACS loop provides the cooling water to the 'A' CREF train. With the high delta pressure on the 'A' SSW strainer, the 'A' SSW pump could only provide approximately 2000 gpm of its normal flow of 16,500 gpm to support the 'A' SSW loop. The 'C' SSW pump, which also supports the 'A' SSW loop, had been removed from service prior to the event for maintenance on

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DESCRIPTION OF OCCURRENCE (cont'd)

the traveling water screen. With only 2000 gpm flow of service water in the 'A' SSW loop, which provides the cooling water to the 'A' SACS loop, the 'A' SACS loop was declared inoperable.

A shutdown brief was conducted and the operating procedure for shutdown from rated power to cold shutdown was entered at 0305 hours. At 0407, shutdown of the unit commenced. The 'C' SSW pump maintenance was completed and the pump returned to service, allowing restoration of the 'A' SACS loop and 'A' CREF to be returned to an operable status. At 0424, the unit shutdown was halted at 94.5% Reactor power when the 'A' CREF train was returned to operable status and TS 3.0.3 was exited.

The above event is being reported in accordance with 10CFR50.73(a)(2)(v)(D), any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident.

CAUSE OF OCCURRENCE

The cause of this event is still under investigation and will be updated in the supplement of this LER. However, preliminary investigation has determined that the failure of the 'A' SSW strainer was due to backing off of the restraining nut holding the main shaft that caused the strainer internals to lower and come in contact with the rim of the strainer body. Although the cause of the nut backing off could not be conclusively determined, a review of the maintenance procedure for assembly of the strainer revealed that no specific guidance is provided to properly torque the nut.

Additionally, the preliminary investigation has identified that a contributing cause to this event was incorrect decision making in permitting emergent work in the work schedule and proceeding with planned maintenance. The 'C' SSW traveling water screen maintenance was added to the 'D' channel work week leaving only 'A' SSW pump to support the 'A' SW loop. The 'B' CREF train was removed from service for scheduled maintenance while the 'C' SSW traveling water screen was still out of service. This configuration left only the 'A' SSW pump to support the remaining train of CREF.

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NARRATIVE *(If more space is required, use additional copies of NRC Form 366A)* (17)

PREVIOUS OCCURRENCES

A review of LERs at Salem and Hope Creek generating stations for the previous two years identified the following similar events based on the preliminary results of the root cause evaluation.

LER 272/2002-004 reported a manual reactor trip and automatic start of the Auxiliary Feedwater system. One of the contributing causes of the event was attributed to the failure of the Senior Reactor Operator, maintenance supervisor and maintenance technician to adequately recognize and manage the risk associated with troubleshooting activities. The corrective action associated with this event was to revise Work Management and Maintenance procedures to improve the guidance for managing work activities of the Work-It-Now (WIN) team with regard to risk.

LER 272/2003-001 identified that the 13 Auxiliary Feedwater (AFW) pump tripped due to the split block on the steam admission valve being loose. A determination was made that the maintenance procedure for assembling the valve actuator left the tightening of the split block to the skill-of-the-craft. The corrective actions associated with this event focused on walkdown of similar safety related valves at Salem and Hope Creek that utilized these split blocks and changes to the maintenance procedure for assembling the actuator.

LER 354/2003-008 reported a manual reactor scram following an electro-hydraulic control (EHC) oil leak. The cause of the event was attributed to the failure to properly assemble the No. 4 Combined Intermediate Control Valve. Maintenance procedures did not specify the required clearances for valve assembly. Maintenance procedures were revised to include the proper clearances for valve assembly.

LER 354/2003-002 reported the inoperability of the Control Room Emergency Filtration (CREF) system due to a breach of the Control Room Envelope (CRE). The cause of this event was the failure to identify that planned maintenance on a ventilation access hatch would impact both trains of CREF. Corrective actions associated with this event were only associated with control of the CRE boundary.

Based on the review of the above LERs, the corrective actions were focused to the specific events above and would not have prevented this event from occurring.

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SAFETY CONSEQUENCES AND IMPLICATIONS

There was no impact to the health and safety of the public. Although the 'A' CREF train was declared inoperable due to the trip of the 'A' SSW strainer and reduced cooling flow in the 'A' SSW loop, the 'A' CREF was still capable of starting and pressurizing the control room with the 'B' CREF train out of service. However, an assessment of how long the 'A' CREF train could operate with the reduced cooling flow capacity was not performed. Both trains of CREF were inoperable simultaneously for approximately 2 hours. During this time period no design basis accidents occurred that would have required the system to operate. Further, actions were being implemented to remove Hope Creek from service and place the plant in a mode where CREF was no longer required until restoration of at least one train of CREF to operable status.

A review of this event determined that a Safety System Functional Failure (SSFF) as defined in Nuclear Energy Institute (NEI) 99-02 has occurred.

CORRECTIVE ACTIONS:

The below corrective actions are based on the preliminary root cause evaluation. Upon completion of the root cause evaluation, additional corrective actions or modifications to the below corrective actions will be discussed in the supplement to this LER.

1. The 'A' SSW strainer was repaired and returned to service.
2. Equipment operator rounds will be revised to inspect the position of the restraining nut on the SSW strainers to ensure they are not backing off.
3. Appropriate maintenance procedures will be revised to specify the proper torque values for fastening the restraining nut on the SSW strainers and to mark the lock nut position so that it can be readily monitored.
4. An information distribution notice pertaining to operational decision making and proper risk assessment associated with planning or deferring work activities that may impact safe and reliable operation has been developed. The notice will be distributed to the appropriate personnel.
5. An operational risk based decision strategy for Operations personnel will be developed.

The actions specified above are being tracked in accordance with PSEG Nuclear's Corrective Action Program.

COMMITMENTS

The corrective actions cited in this LER are voluntary enhancements and do not constitute commitments.