



JUN 12 2002

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U. S. Nuclear Regulatory Commission
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Washington, DC 20555

SPECIAL REPORT 354/2002-003-00
HOPE CREEK GENERATING STATION
FACILITY OPERATING LICENSE NO. NPF-57
DOCKET NO. 50-354

Gentlemen:

This Special Report entitled "License Condition Violation – Reactor Power and Minimum Feedwater Temperature Limits", is being submitted pursuant to the requirements of License Conditions 2.C. (1), (11), and 2.F. The attached Special Report contains no commitments.

Sincerely,

A handwritten signature in black ink, appearing to read "D. F. Garchow", written over the word "Sincerely,".

D. F. Garchow
Vice President - Operations

Attachment

/MGM

C Distribution
 LER File 3.7

IE22

LICENSEE EVENT REPORT (LER)

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

Hope Creek Generating Station

05000354

1 OF 5

License Condition Violation – Reactor Power and Minimum Feedwater Temperature Limits

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
5	13	02	2002 – 003 – 00			06	12	02	FACILITY NAME	DOCKET NUMBER
										05000
									FACILITY NAME	DOCKET NUMBER
										05000
9. OPERATING MODE		1	20.2201(b)		20.2203(a)(3)(ii)	50.73(a)(2)(ii)(B)		50.73(a)(2)(ix)(A)		
10. POWER LEVEL		100	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)		X OTHER		
			20.2203(a)(2)(iii)		50.46(a)(3)(ii)	50.73(a)(2)(v)(C)		Specify in Abstract below or in		
			20.2203(a)(2)(iv)		50.73(a)(2)(i)(A)	50.73(a)(2)(v)(D)		NRC Form 366A		
			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)
Michael G. Mosier, Senior Licensing Engineer	856-339-5434

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

14. SUPPLEMENTAL REPORT EXPECTED

YES (If yes, complete EXPECTED SUBMISSION DATE)	X	NO

15. EXPECTED SUBMISSION DATE

MONTH	DAY	YEAR

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

On May 13, 2002, at 0025 hours the Hope Creek Generating Station experienced a major electrical transient, coincident with a lightning strike on the 5024 New Freedom Line. The apparent cause of the transient as experienced in the plant was the clearing and rapid, automatic re-powering of the 5024 Line, which ties to the Salem switchyard. The electrical transient resulted in a false signal and subsequent auto-isolation of all three (6A/B/C) high-pressure feedwater heaters, as well as other equipment malfunctions. Power peaked at 105.23% due to the reduced feedwater temperature. Abnormal Operating Procedures were entered for Reactor Power, Feedwater Heating, Turbine Hydraulic Pressure and Drywell Pressure. The plant was stabilized at approximately 80% power, and all equipment was returned to normal service.

On May 13, 2002, at 1459 hours, a twenty-four hour notification was made to report potential operation outside of License Condition 2.C (1), which authorizes PSEG Nuclear LLC to operate the facility at reactor core power levels not in excess of 3339 megawatts thermal (100 percent rated power) and 2.C (11), which prohibits after the first operating cycle, operation with a feedwater heating capacity that would result in a rated power feedwater temperature less than 400 degrees F unless analyses supporting such operation are submitted by the licensee and approved by the staff.

This event is being reported as a Special Report in accordance with the requirements of License Condition 2.F. There was no safety consequences associated with this event since significant margins were available to all power distribution thermal limits.

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		2002	0	0	3			

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

PLANT AND SYSTEM IDENTIFICATION

General Electric – Boiling Water Reactor (BWR/4)
 Feedwater System – EIS Identifier {SJ/--} *
 Reactor Water Cleanup System – EIS Identifier {CE/--} *
 Emergency Core Cooling System – EIS Identifier {BO/--} *
 Electrohydraulic Control System – EIS Identifier {TG/--} *
 Technical Support Center Ventilation System – EIS Identifier {VF/--} *
 Fuel Pool Cooling System – EIS Identifier {DA/--} *
 Safety Auxiliaries Cooling System – EIS Identifier {CC/--} *
 Control Room Ventilation System – EIS Identifier {VI/--} *
 Hydrogen Water Chemistry Injection System – EIS Identifier {KD/--} *
 Radiation Monitoring System – EIS Identifier {IL/--} *
 Switchyard System – EIS Identifier {FK/--} *
 Drywell Unit Coolers - EIS Identifier {VB/--} *
 Turbine Building Chillers - EIS Identifier {VK/--} *

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

IDENTIFICATION OF OCCURRENCE

Date of occurrence: May 13, 2002

CONDITIONS PRIOR TO OCCURRENCE

Mode 1 – 100% power. No structures, systems, or components were inoperable at the time of the occurrence that contributed to the event.

DESCRIPTION OF OCCURRENCE

At approximately 0025, May 13, 2002, the Hope Creek Generating Station (HCGS) experienced a major electrical transient. The cause of the transient was attributed to the clearing and rapid re-powering of the 5024 (New Freedom) Line, which ties into the Salem switchyard. Per the Load Dispatcher, New Freedom breakers {FK/52} 2-8 & 7-8 opened concurrently with the Salem 2-6 & 5-6 breakers {FK/52}. The 2-6 and 2-8 breakers subsequently re-closed in a rapid fashion re-powering

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TEXT (If more space is required, use additional copies of NRC Form 366A) (17)**DESCRIPTION OF OCCURRENCE (Cont'd)**

the 5024 line. Several site personnel subsequently reported a lightning strike in the vicinity of the 5024 line at 0025. The resulting electrical transient had the following impact on HCGS Plant Equipment: trip of the "A" Electrohydraulic Control (EHC) Pump {TG/P}, loss of all drywell unit coolers {VB/CHU}, trip of the 6A, B, & C feedwater heaters {SJ/HX}, loss of all turbine building chillers {VK/CHU}, trip of the "B" Fuel Pool Cooling (FPC) pump {DA/P}, trip of the "A" & "B" Reactor Water Cleanup (RWCU) pumps {CE/P} and loss of the filter-demineralizer precoats, trip of the "C" Emergency Core Cooling System (ECCS) jockey pump {BO/P}, Hydrogen Water Chemistry Injection (HWCI) system trip, loss of the North Plant Vent (NPV), South Plant Vent (SPV), Drywell Leak Detection (DLD), and Cooling Tower Blowdown (CTB) Radiation Monitoring System (RMS) skids {IL/-}, trip of the "B" Technical Support Center (TSC) ventilation train with auto start of the "A" train, auto start of the "A" Safety Auxiliaries Cooling System (SACS) pump {CC/P}, trip of the "A" Control Room (CR) ventilation train with auto start of the "B" train, trip of the "B" Reactor Feedpump (RFP) main lube oil pump {SJ/P} with auto start of the auxiliary and emergency lube oil pumps {SJ/P}, and trip of the circulating water hypochlorination system. Power peaked at approximately 105% during the transient due to reduced feedwater temperature. Abnormal Operating procedures were entered for Reactor Power, Feedwater heating, Turbine Hydraulic Pressure, and Drywell Pressure. Power was immediately reduced to 100% and the plant stabilized, and all equipment was returned to normal service. Power was further reduced to 80% in accordance with abnormal operating procedures associated with the loss of feedwater heating. Reactor power peaked at 105.23% and feedwater reached 347degrees F due to the loss of feedwater heating. The operating crew restored extraction steam to the 6A, 6B and 6C feedwater heaters at 0123 and feedwater temperature returned to 394 degrees F. Limiting Conditions for Operation (LCO) were entered for the 15%/hr power change, "A" offgas pretreatment RMS alarm, HWCI trip, "C" ECCS jockey pump, NPV, SPV, CTB, DLD, and RWCU continuous conductivity. This event was terminated more quickly than a similar event that occurred in 1999 due to proper operator recovery action during this event.

The following summarizes the effect on the plant and actions taken: power was immediately reduced to 100% on identification of the power excursion in accordance with reactor power Abnormal Operating Procedure, "B" EHC pump was immediately placed in service upon identification that "A" EHC pump was no longer in service (lowest EHC pressure 1460 psig), power was further reduced to 80% upon identification of a greater than 10 degrees F change in FW heating due to loss of multiple #6 FW heaters, as drywell pressure rose to approximately 0.75 psig, drywell unit coolers were restored (peak drywell pressure reached 0.8-0.9 psig before turning). Subsequently, 3 turbine building chillers were reset locally and returned to service, "B" FPC pump was returned to service, both RWCU pumps were isolated per procedure, the "C" ECCS jockey pump immediately auto restarted and the RHR "A", "C" and core spray "A" fill and vents were inspected with no evidence of air in the system. In addition, HWCI was returned to service, the NPV and SPV RMS were returned to service, and the DLD and CTB RMS auto started when acknowledged. The SACS system was

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DESCRIPTION OF OCCURRENCE (Cont'd)

returned to normal alignment and the "B" RFP lube oil line-up was returned to normal. Chemistry was informed of the circulating water hypochlorination system trip, control board walkdowns and alarm chronology reviews were conducted.

CAUSE OF OCCURRENCE

The apparent cause of the event is attributed to equipment malfunction resulting from the electrical transient following a lightning strike.

PRIOR SIMILAR OCCURRENCES

Prior Hope Creek and Salem LERs and SRs were reviewed for similar events. A similar event was reported in LER 354/1999-009-00, "License Condition Violation – Minimum Feedwater Temperature Limits." The cause of this event was attributed to equipment malfunction resulting from the electrical transient following a lightning strike. The safety lockout of the Primary Containment Instrument Gas (PCIG) compressors and the isolation of the number 6 Feedwater Heater resulted in the immediate entry into Technical Specification 3.0.3 for two inoperable Main Steam Isolation Valve (MSIV) Sealing System subsystems and violation of the Operating License condition for required minimum feedwater heater capacity, respectively. Less than adequate operator response to the plant transient extended the license condition violation for approximately six hours following the lightning strike.

SAFETY CONSEQUENCES AND IMPLICATIONS

The minimum feedwater temperature reported during the transient was 347 degrees F (421 degrees F nominal). The reload licensing analysis for the current cycle of operation assumes a 110 degrees F temperature loss (to 311 degrees F), while operating at rated power, without violation of the fuel cladding integrity Safety Limit. Based on the above, there was no impact to the health and safety of the public.

A review of this condition determined that a Safety System Functional Failure (SSFF) has not occurred as defined in Nuclear Energy Institute (NEI) 99-02.

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CORRECTIVE ACTIONS

A design change to revise the logic for the 6A, 6B and 6C Feed Water Heaters to provide complete UPS protection of these FW Heaters has been implemented.

COMMITMENTS

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