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Nuclear LLC

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

LER 354/06-003-00
HOPE CREEK GENERATING STATION
FACILITY OPERATING LICENSE NPF-57
DOCKET NO. 50-354

This Licensee Event Report entitled, "As Found Values For Safety Relief Valve Lift Setpoints Exceed Technical Specification Allowable" is being submitted pursuant to the requirement of 10CFR50.73(a)(2)(i)(B).

Sincerely,

Michael J. Massaro

Michael J. Massaro
Plant Manager – Hope Creek

Attachment

FDP

C Distribution

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NRC FORM 366 (6-2004)	U.S. NUCLEAR REGULATORY COMMISSION	APPROVED BY OMB: NO. 3150-0104 EXPIRES: 06/30/2007
LICENSEE EVENT REPORT (LER) (See reverse for required number of digits/characters for each block)		Estimated burden per response to comply with this mandatory 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 and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@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 an 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.

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4. TITLE
As Found Values for Safety Relief Valve Lift Setpoints Exceed Technical Specification Allowable

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
									N/A	
04	21	2006	2006	- 003 -	00	06	15	2006	FACILITY NAME N/A	DOCKET NUMBER

9. OPERATING MODE	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: *(Check all that apply)*			
5	☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)
	☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
	☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
	☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
10. POWER LEVEL	☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
	☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
0	☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
	☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ OTHER
	☐ 20.2203(a)(2)(vi)	☒ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME	TELEPHONE NUMBER (Include Area Code)
F. Possessky, Compliance Engineer	856-339-1160

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
B	SB	RV	T020	Y					

14. SUPPLEMENTAL REPORT EXPECTED		15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR
☐ YES *(If yes, complete 15. EXPECTED SUBMISSION DATE)*	☒ NO				

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

On April 21, 2006, PSEG determined that three safety relief valve (SRV) setpoints exceeded Technical Specification (TS) allowable tolerance specified in TS 3.4.2.1. This specification requires SRV setpoint limits to be within +/- 3% of the specified value. The valves failing to meet limits were Target Rock Model 7567F SRVs. The testing followed Hope Creek fuel cycle thirteen. In all, a total of three of fourteen SRVs experienced setpoint drift outside of the Technical Specification 3.4.2.1 limit.

The apparent cause for the three SRV setpoint failures is corrosion bonding/sticking of the pilot disc. Immediate corrective action was to replace all three valves with tested and certified spare pilot assemblies. These three valves will be disassembled and inspected to document the cause of the failure. Since the number of SRVs outside of the setpoint tolerance limit (three) was greater than the number of SRVs (one) allowed to be inoperable by Technical Specification 3.4.2.1, this condition was determined to be reportable under 10CFR50.73(a)(2)(i)(B), as any operation or condition prohibited by the plant Technical Specifications.

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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)
Main Steam – EIIS Identifier {SB}*
Safety Relief Valves - EIIS Identifier {--/RV}*

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

IDENTIFICATION OF OCCURRENCE

Event Date: April 21, 2006
Discovery Date: April 21, 2006

CONDITIONS PRIOR TO OCCURRENCE

Hope Creek was in cold shutdown for the thirteenth refueling outage (RF13). No structures, systems, or components were inoperable at the time of discovery that contributed to the event.

DESCRIPTION OF OCCURRENCE

On April 21, 2006, Engineering personnel received the results of the Main Steam Safety Relief Valves (SRV){SB/RV} (Target Rock Model 7567F) setpoint testing required by Technical Specification 4.4.2.2. That report documented the failure of SRV A, C, and K to meet TS 3.4.2.1 limit of +/- 3%. Action a of TS 3.4.2.1 specifies "With the safety valve function of two or more of the above listed fourteen safety/relief valves inoperable, be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the next 24 hours."

Valve ID	As Found (psig)	TS Setpoint (psig)	Acceptable Band (psig)	% Difference
F013A	1166	1130	1096 - 1163	3.2%
F013C	1166	1130	1096 – 1163	3.2%
F013K	1144	1108	1075 – 1141	3.2%

CAUSE OF OCCURRENCE

The apparent cause for the "A", "C", and "K" SRV setpoint failures is corrosion bonding/sticking of the pilot disc. PSEG Nuclear has continued to experience as-found setpoint failures on SRVs even with the industry recommended coating Ion Beam Assisted Deposition (IBAD) installed on the pilot disc. The initial lift being out of specification, with subsequent lifts within specification and/or the initial failure of the stick test, is an indication of corrosion bonding of the pilot disc.

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PREVIOUS OCCURRENCES

A review of events for the three prior years at Hope Creek was performed to determine if similar event had occurred. There was a similar event when 8 SRVs were found during the RF11 Hope Creek refueling outage and 5 SRVs were found during the RF12 Hope Creek refueling outage out of TS required limits of +/- 3%. These events were reported as LER 354/2004-003-00 and LER 354/2004-009-00. Corrective actions were not successful to prevent recurrence.

SAFETY CONSEQUENCES AND IMPLICATIONS

A bounding analysis was performed and documented in VTD# 322869, NEDC-32511P, "SAFETY REVIEW FOR HOPE CREEK GENERATING STATION SAFETY/RELIEF VALVE TOLERANCE ANALYSIS." This analysis supported the increase in allowable Technical Specification (TS) setpoint drift from + 1 percent to + 3 percent. An individual SRV upper limit setpoint of 1250 psig and 13 SRV's available out of a total of 14 was assumed in the calculation. The calculated peak vessel pressure at the bottom of the reactor vessel was 1331 psig. This provides a margin of 44 psi to the ASME upset limit of 1375 psig. Based on the above, there was no impact to the health and safety of the public because none of the SRVs exceeded the 1250 psig analyzed limit.

In addition, loads on SRV discharge piping were reviewed. The discharge piping analysis establishes an allowable percentage increase for each SRV line such that the allowable stresses will not be exceeded. This condition was previously evaluated and found acceptable for 5.5% above nominal setpoint as identified in LER 354/2004-009-00.

Additional plant systems were evaluated for potential issues regarding the higher pressure from the higher SRV setpoints. Evaluations concluded that these systems remained operable.

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

CORRECTIVE ACTION

- The pilot assembly for each of the failed SRVs was replaced with a fully tested spare assembly.
- All 14 pilot discs were replaced with those of Stellite 21 alternative material, as recommended by the BWROG.

COMMITMENTS

This LER contains no commitments.