PSE&G

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

Hope Creek Operations

July 2, 1991

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 91-013-00

This Licensee Event Report is being submitted as a voluntary report pursuant to the guidelines established by NUREG 1022, Supplement 1, due to the regulatory interest in the conditions described in the report.

Sincerely,

J.J. Hagan
General Manager -
Hope Creek Operations

RBC/

Attachment
SORC Mtg. 91-066

C Distribution

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): BOTH TRAINS OF STANDBY LIQUID CONTROL INOPERABLE DURING PERFORMANCE OF INSERVICE TESTING - PROCEDURAL DEFICIENCY - VOLUNTARY REPORT

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 6	0 5	9 1	9 1	-	0 1 3	-	0 0	0 7	0 2	9 1		

OPERATING MODE (9)	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)	XX	OTHER (Specify in Abstract below and in Text) VOLUNTARY REPORT	
		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
Richard Cowles, Senior Staff Engineer - Technical	6 0 9 3 3 9 3 4 3 1

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

CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS?	CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS?

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

ABSTRACT (16)

On 6/5/91, during a review of an industry operating experience document for applicability to Hope Creek, a Safety Review Engineer determined that, during quarterly Inservice Testing (IST) of the Standby Liquid Control (SLC) system pumps, both SLC loops would be inoperable for a short period of time during the testing. The system valve alignments required by the quarterly SLC IST procedures could, for a brief period, establish a system flowpath such that the operable SLC loop would not inject to the reactor vessel if a valid injection signal occurred concurrent with performing the first portion of the IST procedure. These findings were communicated to the Senior Nuclear Shift Supervisor (SNSS, SRO licensed), and a change request was immediately initiated to modify the affected quarterly SLC IST procedures.

PLANT AND SYSTEM IDENTIFICATION:

General Electric - Boiling Water Reactor (BWR/4)
Standby Liquid Control System (EIIS Designation: BR)

IDENTIFICATION OF OCCURRENCE

Both Trains of Standby Liquid Control Inoperable During Performance of Inservice Testing - Procedural Deficiency

Date of Discovery: 6/5/91
Time of Discovery: 1300
This LER was initiated by Incident Report No. 91-080

CONDITIONS PRIOR TO OCCURRENCE

Plant in OPERATIONAL CONDITION 1 (Power Operation), Reactor Power 100%, Unit Load 1107 MWe.

DESCRIPTION OF OCCURRENCE

On 6/5/91 at 1300, the Senior Nuclear Shift Supervisor (SNSS, SRO licensed) was informed by a Safety Review Group (SRG) engineer that during quarterly Inservice Testing (IST) of the Standby Liquid Control (SLC) system, both SLC loops would be inoperable for a brief period of time during the testing. Technical Specifications allow both SLC loops to be inoperable for up to 8 hours. However, due to the regulatory interest associated with this condition, a four hour non-emergency notification was made by the SNSS, and this report is being submitted as a voluntary LER pursuant to the guidelines of NUREG 1022.

ANALYSIS OF OCCURRENCE

During a review of an industry operating experience document (INPO OE-4622) regarding the SLC system, the SRG engineer determined that the conditions described in the document applied to Hope Creek. Specifically, under certain testing conditions established during the quarterly IST surveillance of each SLC loop, both SLC loops would be inoperable for a short period of time during the testing. The system valve alignments required by the procedure could, for a brief period of time, establish a system flowpath such that the operable SLC loop would not inject to the reactor vessel if a valid injection signal occurred concurrent with performing the first portion of the procedure. Refer to Attachment 1 for a diagram of the SLC system.

ANALYSIS OF OCCURRENCE, CONT'D

The purpose of the SLC system is to provide an alternate method of reactor shutdown independent of the Control Rod Drive system. Should sufficient control rods fail to insert as required during a scram scenario, SLC will be initiated via the Redundant Reactivity Control System (RRCS). At 3.9 minutes following initiation of the SLC system, the SLC pumps start, the "squib" (explosive shear) valves fire, and sodium pentaborate is injected into the reactor vessel to provide the negative reactivity necessary to shutdown the reactor.

Quarterly IST surveillances of the SLC pumps are conducted to ensure operability of the pumps. The following flowpath example relates to the "A" SLC loop; the flowpath for the "B" loop is identical except for valve numbers.

The valve lineup for performance of the test is as follows:

VLV #	DESCRIPTION	POSITION
V001	SLC TANK ISOLATION TO "A" SLC LOOP	CLOSED
V024	SLC TEST TANK ISLN TO "A" SLC LOOP	OPEN
V045	SLC TEST TANK ISLN TO "B" SLC LOOP	CLOSED
V053	SLC TEST TANK DISCHARGE VLV	OPEN
V002	"A" SLC PUMP SUCTION VALVE	OPEN
V050	"A" SLC PUMP XTIE TO TEST TANK	OPEN
V049	"B" SLC PUMP XTIE TO TEST TANK	CLOSED
V019	SYSTEM RETURN TO TEST TANK THROTTLE	THROTTLED
V022	SYSTEM RETURN TO TEST TANK ISLN	OPEN
V052	"A" SLC LOOP DISCHARGE MAN ISLN VLV	OPEN
V051	"B" SLC LOOP DISCHARGE MAN ISLN VLV	OPEN

This alignment allows for suction on the test tank, through the "A" SLC pump, and return to the test tank. Return to the test tank is via V019, which is throttled to 1260 PSIG after starting the pump. It is possible, if a valid SLC initiation signal was received prior to adjusting V019 to 1260 PSIG, for "B" loop flow to be directed to the test tank instead of the reactor vessel via V051 and V052, backflowing through the squib valve (F004A) and V050. This scenario assumes that both SLC squib valves have fired in response to a valid SLC initiation signal, that the "B" SLC pump starts, and that V019 is throttled to a setting below normal reactor pressure (approximately 1000 PSIG).

ANALYSIS OF OCCURRENCE, CONT'D

This condition existed only for one past quarterly IST surveillance on each pump. The surveillance had previously been done during cold shutdown conditions, where operability of SLC was not required by Technical Specifications. A relief request per the station IST program manual to perform this test only during cold shutdown conditions was denied during NRC staff review of Revision 2 of the IST program manual.

PREVIOUS OCCURRENCES

No previous occurrences of a similar nature have occurred at Hope Creek.

SAFETY SIGNIFICANCE

The safety significance of conditions described in this report was minimal. As noted, these conditions only existed during the performance of one past quarterly IST surveillance on each pump. Additionally, the system alignments that would allow sodium pentaborate to be routed back to the test tank rather than the reactor vessel would exist only for a few minutes during each surveillance, until V019 was throttled to a pressure higher than reactor vessel pressure. At this point, any flow would be directed through the "path of least resistance", or to the reactor vessel.

As noted previously in this report, SLC does not begin the injection process until 3.9 minutes after RRCS initiation during a potential Anticipated Transient Without Scram 'ATWS' condition. With operators being stationed at the local controls for performance of the surveillance, if a valid SLC initiation signal occurred during the course of the surveillance, the system alignment could be restored to normal prior to starting of the SLC pumps and firing of the squib valves.

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		YEAR	\\	NUMBER			\\	REV										
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CORRECTIVE ACTIONS

The subject IST procedures were modified to preclude affecting the capability of an operable SLC loop to inject to the reactor vessel if required. Specifically, the isolation valve downstream of the squib valve on the loop being tested will be closed to prevent, in the event of a valid SLC initiation during testing, SLC backflowing from the operable loop to the loop being tested.

Sincerely,

J.J. Hagan
General Manager -
Hope Creek Operations

RBC/

SORC Mtg. 91-066

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HOPE CREEK GENERATING STATION	05000354	91	-	0	1	3	-	0	0	A	1	OF						

STANDBY LIQUID CONTROL SYSTEM SIMPLIFIED DIAGRAM