Southern Nuclear

David R. Vineyard
Vice President – Plant Hatch

Hatch Nuclear Plant
11028 Hatch Parkway North
Baxley, GA 31513
912 537 5859 tel
912 366 2077 fax

AUG 2 4 2017

Docket Nos.: 50-366

NL-17-1435

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555-0001

Edwin I. Hatch Nuclear Plant
Licensee Event Report 2017-004-00
Safety Relief Valves' As Found Settings Resulted in Not Meeting
Tech Spec Surveillance Criteria

Ladies and Gentlemen:

In accordance with the requirements of 10 CFR 50.73(a)(2)(i)(B) Southern Nuclear Operating Company hereby submits the enclosed Licensee Event Report.

This letter contains no NRC commitments. If you have any questions, please contact Greg Johnson at 912.537.5874.

Respectfully submitted,

D. R. Vineyard
Vice President – Hatch

DRV/mre/cbg

Enclosure: LER 2017-004-00

Cc: Regional Administrator, Region II
NRR Project Manager – Hatch
Senior Resident Inspector – Hatch
RTYPE: CHA02.004

Edwin I. Hatch Nuclear Plant Unit 2

LER 2017-004-00

Safety Relief Valves' As Found Settings Resulted in Not Meeting Tech Spec Surveillance Criteria

NRC FORM 366 (04-2017) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3160-0104 EXPIRES: 03/31/2020

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Information Services Branch (T-2 F43), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollects.Resource@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.

LICENSEE EVENT REPORT (LER)

(See Page 2 for required number of digits/characters for each block)

(See NUREG-1022, R 3 for instruction and guidance for completing this form http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/)

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Edwin I. Hatch Nuclear Plant Unit 2	05000 366	1 OF 3

4. TITLE

Safety Relief Valves' As Found Settings Resulted in Not Meeting Tech Spec Surveillance Criteria

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
6	30	2017	2017	- 004 -	00	08	24	2017		05000
									FACILITY NAME	DOCKET NUMBER 05000

9. OPERATING MODE	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)			
1	☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
	☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
	☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
	☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
10. POWER LEVEL	☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
	☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
	☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(C)	☐ 73.77(a)(1)
100	☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(D)	☐ 73.77(a)(2)(i)
	☐ 20.2203(a)(2)(vi)	☑ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(vii)	☐ 73.77(a)(2)(ii)
		☐ 50.73(a)(2)(i)(C)	☐ OTHER Specify in Abstract below or in NRC Form 366A	

12. LICENSEE CONTACT FOR THIS LER

LICENSEE CONTACT	TELEPHONE NUMBER (Include Area Code)
Edwin I. Hatch / Carl James Collins – Licensing Supervisor	(912) 537-2342

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 June 30, 2017, Unit 2 was at 100 percent rated thermal power (RTP) when "as-found" testing results of the 3-stage main steam safety relief valves (SRVs) indicated two of the eleven Unit 2 SRVs experienced a setpoint drift during the previous operating cycle which resulted in their failure to meet the Technical Specification (TS) opening setpoint pressure of 1150 +/- 34.5 psig as required by TS Surveillance Requirement (SR) 3.4.3.1. The test results showed that two SRVs were slightly out of specification low due to setpoint drift.

The SRV pilots were disassembled and inspected while investigating the reason for the drift. SNC has determined that the abutment gap closed pre-maturely. The pre-mature abutment gap closure is most likely due to loose manufacturing tolerances leading to SRV setpoint drift.

LICENSEE EVENT REPORT (LER) CONTINUATION SHEET

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Edwin I. Hatch Nuclear Plant Unit 2	05000- 366	2017	- 004	- 00

NARRATIVE

PLANT AND SYSTEM IDENTIFICATION

General Electric - Boiling Water Reactor
Energy Industry Identification System codes appear in the text as "(EIIS Code RV)".

Event Description

On June 30 2017, with Unit 2 at 100 percent rated thermal power (RTP), "as-found" testing of the 3-stage main steam safety relief valves (SRVs) (EIIS Code RV) showed that two of the eleven main steam SRVs that were tested had experienced a drift in pressure lift setpoint during the previous operating cycle such that the allowable technical specification (TS) surveillance requirement (SR) 3.4.3.1 limit of 1150 +/- 34.5 psig had been exceeded. Below is a table illustrating the Unit 2 SRVs that failed as found testing results after being removed from service during the Spring 2017 refueling outage.

MPL	Drift
2B21-F013C	- 39 psig
2B21-F013E	- 49 psig

Event Cause Analysis

The SRV pilots were disassembled and inspected while investigating the reason for the drift. It was found that the abutment gap closed prematurely during testing using a linear variable differential transformer (LVDT) to measure pilot stroke distance. The pre-mature abutment gap closure is most likely due to loose manufacturing tolerances leading to SRV setpoint drift.

Safety Assessment

This event is reportable in accordance with 10 CFR 50.73(a)(2)(i)(B) because a condition occurred that is prohibited by TS 3.4.3. Specifically, an example of multiple test failures is given in NUREG-1022, Revision 3, "Event Reporting Guidelines 10 CFR 50.72 and 50.73", which describes the sequential testing of safety valves. This example notes that "Sometimes multiple valves are found to lift with set points outside of technical specification limits." NUREG-1022 further states in the example that "discrepancies found in TS surveillance tests should be assumed to occur at the time of the test unless there is firm evidence, based on a review of relevant information (e.g., the equipment history and the cause of failure), to indicate that the discrepancy occurred earlier. However, the existence of similar discrepancies in multiple valves is an indication that the discrepancies may well have arisen over a period of time and the failure mode should be evaluated to make this determination." Based on this guidance, the determination was made that this "as found" condition is reportable under the reporting requirements of 10 CFR 50.73(a)(2)(i)(B).

There are eleven SRVs located on the four main steam lines within the drywell in between the reactor pressure vessel (RPV) (EIIS Code RPV) and the inboard main steam isolation valves (MSIVs) (EIIS Code ISV). These SRVs are required to be operable during Modes 1, 2, and 3 to limit the peak pressure in the nuclear system such that it will not exceed the applicable ASME Boiler and Pressure Vessel Code Limits for the reactor coolant pressure boundary. The SRVs are tested in accordance with TS Surveillance Requirement 3.4.3.1 in which the valves are tested as directed by the In-Service Testing Program to verify lift set points are within their specified limits to confirm they would perform their required safety function of overpressure protection.

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Edwin I. Hatch Nuclear Plant Unit 2	05000- 366	2017	- 004	- 00

NARRATIVE

The SRVs must accommodate the most severe pressurization transient which, for the purposes of demonstrating compliance with the ASME Code Limit of 1375 psig peak vessel pressure, has been defined by an event involving the closure of all MSIVs with a failure of the direct reactor protection system trip from the MSIV position switches with the reactor ultimately shutting down as the result of a high neutron flux trip (a scenario designated as MSIVF).
The two SRVs which failed to meet their Tech Spec required actuation pressure setpoint lifted early. None of the eleven SRVs tested this cycle had as-found test results out of range high. Therefore, since the two identified SRVs lifted earlier than expected, the ASME Code Limit of 1375 psig peak vessel pressure would be maintained under normal and accident conditions. The opening of one or more SRVs at lower pressures would result in a less severe transient with reduced peak vessel pressure. Also, the slightly lower actuating pressure does not pose a significant LOCA initiator threat because the reactor steam dome would not experience >1100 psig during normal operation; therefore, these valves would not have inadvertently opened.

Based on the observed setpoint drift slightly low, the overpressure protection system would have continued to perform its required safety function if called upon in its "as found" condition. Therefore, this event had no adverse impact on nuclear safety and was of very low safety significance.

Corrective Actions

The vendor specifications was revised to tighten as-left tolerances of abutment and pre-load gap, increase the minimum set for abutment pressure at the high end of specification, and tighten diametrical and face run-out tolerances for bellows assembly on pre-load spacer mounting end.

Previous Similar Events:

LER 1-2016-004 identified multiple SRV setpoint drift for 2 of the 11 SRVs. Corrective actions included revising vender specifications to tighten as-left tolerances of abutment and pre-load gap, increase the minimum set for abutment pressure at the high end of specification, and tighten diametrical and face run-out tolerances for bellows assembly on pre-load spacer mounting end.

LER 2-2015-004 identified multiple SRV setpoint drift for 2 of the 11 SRVs. Corrective actions included replacement of the 2-stage SRVs with 3-stage SRVs which typically do not exhibit set point drift. The setpoint drift was out of spec high while the event discussed in LER 1-2016-004 have failed to meet acceptance criteria by drifting out of spec low.

LER 1-2014-003 identified multiple SRV setpoint drift for 5 of the 11 SRVs. Corrective actions included replacement of the 2-stage SRVs with 3-stage SRVs which typically do not exhibit set point drift. The setpoint drift was out of spec high while the event discussed in LER 1-2016-004 have failed to meet acceptance criteria by drifting out of spec low.

LER 1-2012-004 identified multiple SRV setpoint drift for 8 of the 11 SRVs. Corrective actions included replacement of the 2-stage SRVs with 2-stage SRVs whose pilot discs had undergone a platinum surface treatment which was considered at that time to be the long term fix for this corrosion bonding issue.