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May 26, 2016

Docket Nos.: 50-321

NL-16-0772

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

Edwin I. Hatch Nuclear Plant
Licensee Event Report 2016-004-00
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,

C. R. Pierce
Regulatory Affairs Director

CRP/cp/lac

Enclosures: LER 2016-004-00

U. S. Nuclear Regulatory Commission

NL-16-0772

Page 2

cc: Southern Nuclear Operating Company

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Mr. D. G. Bost, Executive Vice President & Chief Nuclear Officer

Mr. D. R. Vineyard, Vice President – Hatch

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U. S. Nuclear Regulatory Commission

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Mr. D. H. Hardage, Senior Resident Inspector – Hatch

Edwin I. Hatch Nuclear Plant Unit 1

LER 2016-004-001

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



LICENSEE EVENT REPORT (LER)
(See Page 2 for required number of digits/characters for each block)

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 FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to Infocollections.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

1. FACILITY NAME Edwin I. Hatch Nuclear Plant Unit 1	2. DOCKET NUMBER 05000 321	3. PAGE 1 OF 4
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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
3	30	2016	2016	- 004	- 00	5	26	2016	FACILITY NAME	DOCKET NUMBER

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

1	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)
	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)
100	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)
	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> 73.77(a)(1)
	<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	<input type="checkbox"/> 73.77(a)(2)(i)
	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> 73.77(a)(2)(ii)
	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> OTHER	Specify in Abstract below or in NRC Form 366A	

12. LICENSEE CONTACT FOR THIS LER

LICENSEE CONTACT Edwin I. Hatch / Carl James Collins – Licensing Supervisor	TELEPHONE NUMBER <i>(Include Area Code)</i> 912-537-2342
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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 <input type="checkbox"/> YES <i>(If yes, complete 15. EXPECTED SUBMISSION DATE)</i> <input checked="" type="checkbox"/> NO	15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR

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

On March 30, 2016, Unit 1 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 1 SRVs had 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 spec 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**

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1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Edwin I. Hatch Nuclear Plant Unit 1	05000-321	2016	- 004	- 00

NARRATIVE

PLANT AND SYSTEM IDENTIFICATION

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

DESCRIPTION OF EVENT

On March 30 2016, with Unit 1 at 100 percent rated thermal power (RTP), "as-found" testing of the 3-stage main steam safety relief valves (SRVs) (EIIIS 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 (+/- 3%) psig had been exceeded. Below is a table illustrating the Unit 1 SRVs that failed as found testing results after being removed from service during the Spring 2016 refueling outage.

MPL	Lift Pressure	Percent Drift
1B21-F013D	1113 psig	-3.2%
1B21-F013E	1106 psig	-3.8%

CAUSE OF EVENT

The SRV pilots were disassembled and inspected while investigating the reason for the drift. SNC has determined that the linear variable differential transformer (LVDT) used to measure displacement confirmed the abutment gap closed prematurely. The pre-mature abutment gap closure is most likely due to loose manufacturing tolerances leading to SRV setpoint drift.

REPORTABILITY ANALYSIS AND 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).



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NARRATIVE

There are eleven SRVs located on the four main steam lines within the drywell in between the reactor pressure vessel (RPV) (EIS Code RPV) and the inboard main steam isolation valves (MSIVs) (EIS 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. 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 (3.2% low and 3.8% low). 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.

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 will be 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.



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NARRATIVE

ADDITIONAL INFORMATION

Other Systems Affected: None

Failed Components Information:

Master Parts List Number: 1B21-F013D, E
 Manufacturer: Target Rock
 Model Number: 0867F
 Type: Relief Valve
 Manufacturer Code: T020
 EIS System Code: SB
 Reportable to EPIX: Yes
 Root Cause Code: B
 EIS Component Code: RV

Commitment Information: This report does not create any licensing commitments.

PREVIOUS SIMILAR EVENTS:

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.