



Regulatory Affairs

3535 Colonnade Parkway
Birmingham, AL 35243

205 992 5316 tel
205 992 7795 fax

August 15, 2018

Docket No.: 50-321

NL-18-1060

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

Edwin I. Hatch Nuclear Plant Unit 1
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 Jimmy Collins at (912) 537-2342.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "C. A. Gayheart", written over the printed name.

C. A. Gayheart
Regulatory Affairs Director

CAG/jcb

Enclosure: LER 2018-003-00

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

Edwin I. Hatch Nuclear Plant Unit 1

LER 2018-003-00



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/>)

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 infocoll@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NREG-1022, (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.

1. Facility Name Edwin I. Hatch Unit 1	2. Docket Number 05000 321	3. Page 1 OF 3
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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
06	20	2018	2018	003	00	08	15	2018	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	<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)
10. Power Level	<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)
100	<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)(vi)	<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 / Jimmy Collins – Licensing Manager	Telephone Number (include Area Code) 912-537-2342

13. Complete One Line for each Component Failure Described in this Report									
Cause	System	Component	Manufacturer	Reportable to ICES	Cause	System	Component	Manufacturer	Reportable to ICES
B	SB	RV	T020	Y					
14. Supplemental Report Expected					15. Expected Submission Date				
<input type="checkbox"/> Yes (If yes, complete 15 Expected Submission Date) <input checked="" type="checkbox"/> No					Month Day Year				

Abstract (Limit to 1400 spaces, i.e., approximately 14 single-spaced typewritten lines)

On June 20, 2018, 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 the two SRVs were slightly out of spec low due to setpoint drift.

The SRV pilots were disassembled and inspected to investigate the reason for the setpoint drift. Based on inspection results, the drift in setpoint was due to low abutment gap and low abutment pressure. Due to their location, drywell ventilation blowing on these two safety relief valves caused them to undergo a cyclic heating and cooling every 12 hours during the Unit's 2-year operating cycle. These temperature gradients across the valve internals caused a relaxation of the setpoint spring and bellows assembly.

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

(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/>)

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.

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
Edwin I. Hatch Unit 1	05000- 321	YEAR	SEQUENTIAL NUMBER	REV NO.
		2018	003	00

NARRATIVE**Event Description**

On June 20, 2018 at 0852 EST with Unit 1 at approximately 100 percent rated thermal power, "as-found" testing of the 3-stage main steam safety relief valves (SRVs) (EIS 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 2018 refueling outage.

MPL	Lift Pressure	Percent Drift
1B21-F013D	1095 psig	-4.78%
1B21-F013E	1107 psig	-3.74%

Event Cause Analysis

The cause of this event is due to low abutment gap and low abutment pressure. Due to their location, drywell ventilation blowing on these two safety relief valves caused them to undergo a cyclic heating and cooling of approximately 3 degrees every 12 hours during the Unit's 2-year operating cycle. These temperature gradients across the valve internals caused a relaxation of the setpoint spring and bellows assembly. This relaxation then caused the pilot disc to seat with less pressure, allowing the valve to open prematurely during as-found testing.

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) (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 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).

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Edwin I. Hatch Unit 1	05000- 321	YEAR 2018	SEQUENTIAL NUMBER 003	REV NO. 00

NARRATIVE

The two SRVs which failed to meet their Tech Spec required actuation pressure setpoint lifted early (4.78% low and 3.74% 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 due to as-found lift pressures being higher than normal operating pressures.

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 identified SRV pilots have been replaced with pilots who as-left testing is within valve specifications. Drywell ventilation ductwork will also be rerouted to move the flow path away from the "D" and "E" SRVs at the next available opportunity.

Previous Similar Events

LER 2-2017-004 identified SRV low setpoint drift for 2 of the 11 three-stage SRVs. Corrective actions included revising vendor specification 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 the pre-load spacer mounting end.

LER 1-2016-004 identified SRV low setpoint drift for 2 of the 11 three-stage SRVs. Corrective actions included revising vendor 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 the pre-load spacer mounting end.