

Dennis R. Madison  
Vice President - Hatch

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May 4, 2009

Docket No.: 50-366

NL-09-0690

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

Edwin I. Hatch Nuclear Plant  
Licensee Event Report  
Safety Relief Valves Allowable Test Range Exceeded Due to Setpoint Drift

Ladies and Gentlemen:

In accordance with the requirements of 10 CFR 50.73(a)(2)(i)(B), Southern Nuclear Operating Company is submitting the enclosed Licensee Event Report (LER) concerning safety relief valves allowable test range exceeded due to Setpoint drift.

This letter contains no NRC commitments. If you have any questions, please advise.

Sincerely,

A handwritten signature in black ink that reads "Dennis R. Madison".

D. R. Madison  
Vice President – Hatch

DRM/MJK/daj

Enclosure: LER 2-2009-001

cc: Southern Nuclear Operating Company  
Mr. J. T. Gasser, Executive Vice President  
Ms. P. M. Marino, Vice President – Engineering  
RTYPE: CHA02.004

U. S. Nuclear Regulatory Commission  
Mr. L. A. Reyes, Regional Administrator  
Mr. R. E. Martin, NRR Project Manager – Hatch  
Mr. J. A. Hickey, Senior Resident Inspector – Hatch

## LICENSEE EVENT REPORT (LER)

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.

## 1. FACILITY NAME

Edwin I. Hatch Nuclear Plant Unit 2

## 2. DOCKET NUMBER

05000 366

## 3. PAGE

1 OF 4

## 4. TITLE

Safety Relief Valves Allowable Test Range Exceeded Due to Setpoint Drift

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
03	12	2009	2009	- 001 -	0	05	04	2009		05000
									FACILITY NAME	DOCKET NUMBER
										05000

## 9. OPERATING MODE

5

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

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

## 12. LICENSEE CONTACT FOR THIS LER

## FACILITY NAME

Edwin I. Hatch / Kathy Underwood, Performance Improvement Supervisor

## TELEPHONE NUMBER (Include Area Code)

912-537-5931

## 13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
B	SB	RV	T020	Yes					

## 14. SUPPLEMENTAL REPORT EXPECTED

☐ YES (If yes, complete 15. EXPECTED SUBMISSION DATE)☒ NO

## 15. EXPECTED SUBMISSION DATE

MONTH

DAY

YEAR

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

On March 12, 2009 at approximately 4:00 pm EDT, Unit 2 was in refuel mode at 0 percent power. On that day, it was determined that during bench testing at an independent testing facility five Safety Relief Valves (SRVs) experienced setpoint drift that exceeded the allowable plant Technical Specifications (TS) limit above the setpoint value.

The initially identified cause of the SRV setpoint drift above the setpoint value is corrosion-induced bonding between the pilot disc and seating surface.

Immediate corrective actions for this event included replacement of the SRVs with refurbished pilot valves with discs made from stellite 21 that have been certified to actuate within 11.5 psi of the setpoint. Each of the pilot discs from the valves removed for testing have been replaced with a pilot disc made from Stellite 21 material. Evaluation of additional actions to further improve SRV performance will be tracked under the plant's corrective action program.

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NARRATIVE (If more space is required, use additional copies of NRC Form 366A)

PLANT AND SYSTEM IDENTIFICATION

General Electric - Boiling Water Reactor

Energy Industry Identification System codes appear in the text as (EIIS Code XX).

DESCRIPTION OF EVENT

On March 12, 2009 at approximately 4:00 pm EDT, Unit 2 was in refuel mode at 0 percent power. On that day, it was determined that during bench testing at an independent testing facility five Safety Relief Valves (SRVs) (EIIS Code SB) experienced setpoint drift that exceeded the allowable plant Technical Specifications (TS) limit above the setpoint value. All eleven SRV's were tested. Of those eleven, five failed the as found testing. The following is a tabulation of the test results for the five SRVs that failed the as-found test:

MPL Number	Pilot Serial Number	As-Found Lift Pressure	Percent Drift
2B21-F013A	302	1193	103.7
2B21-F013B	315	1209	105.1
2B21-F013D	314	1200	104.3
2B21-F013H	307	1204	104.7
2B21-F013M	1005	1187	103.2

These valves were removed from service during a planned refuel outage and replaced with like kind valves that were serviced and tested in accordance with plant procedures.

CAUSE OF EVENT

The initially identified cause of the SRV setpoint drift above the setpoint value is corrosion-induced bonding between the pilot disc and seating surface.

REPORTABILITY ANALYSIS AND SAFETY ASSESSMENT

This event is reportable per 50.73(a)(2)(i)(B) because an event occurred which is prohibited by Technical Specifications (TS). Specifically, multiple test failures of the SRVs is defined as reportable in NUREG-1022, Revision 2, dated October 2000, in section 3.2.2, example 3, titled "Multiple Test Failures."

The SRVs, which are located on the four main steam lines within the drywell between the reactor vessel and the inboard main steam isolation valves (MSIV EIIS Code SB), are required 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

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U.S. NUCLEAR REGULATORY COMMISSION

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coolant pressure boundary. Per TS Surveillance Requirement 3.4.3.1, the valves are tested in accordance with the In-service Testing Program to verify the safety function lift setpoints are within the specified limits.

The impact of the "as found" setpoints for these safety relief valves was analyzed using the most severe pressurization transient which, for the purposes of demonstrating compliance with the ASME Code limit of 1375 psi peak vessel pressure, has been defined as a closure of all MSIVs with a failure of the direct reactor protection system trip from the MSIV position switches. The reactor ultimately shutdowns from a high neutron flux trip. Analysis of this event using the as-found bench test results for the tested SRV's concluded that there would have been at least a 50 psi margin to the 1375 psi ASME Boiler and Pressure Vessel Code overpressure limit. Even though this transient is not an anticipated operational occurrence (AOO), the analysis demonstrates that even under the extreme conditions assumed adequate margin to the ASME Code limit of 1375 psi still exists.

The plant Technical Specifications overpressure safety limit of 1325 psi dome pressure must be met during normal operations and for anticipated operational occurrences (AOOs). The analysis of the as-found test results also showed that there is approximately a 35 psi margin to the 1325 psi Tech Spec Safety Limit during the limiting MSIVF event in Hatch-2 Cycle 20.

In addition, a non-credited electrical actuation system was installed in 1993 to ensure proper actuation of the SRVs. This system provides a redundant, independent method (i.e., electrical signal) to actuate the SRVs. During the run cycle the redundant electrical system was available. The system was procured to Class 1E environmental and seismic standards, and is deemed highly reliable.

Based on this analysis, it is concluded that this event had no adverse impact on nuclear safety.

#### CORRECTIVE ACTIONS

All pilot valves have been replaced with refurbished pilot valves which have been certified to actuate within 11.5 psi of the setpoint and have disc made from stellite 21 material.

Each of the pilot discs from the valves removed for testing will be replaced with a pilot disc made from stellite 21 material. Implementation will be tracked under the corrective action program.

Any additional actions to further improve SRV performance will be tracked under the plant's corrective action program.

#### ADDITIONAL INFORMATION

Other Systems Affected: None

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## Failed Components Information:

Master Parts List Number: 2B21-F013  
Manufacturer: Target Rock  
Model Number: 7567F  
Type: Relief Valve  
Manufacturer Code: T020

EIIS System Code: SB  
Reportable to EPIX: Yes  
Root Cause Code: B  
EIIS Component Code: RV

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

## Previous Similar Events:

LER 2-2008-004; identified multiple SRV setpoint drift for three of the four tested SRV's. Corrective actions for that LER, replacement of discs were implemented but discs made of stellite 21 for the Unit 2 SRV's were not available for all of the replaced discs and thus could not have prevented the current event.

LER 1-2008-002; identified multiple SRV setpoint drift for three of the eleven SRV's. Corrective actions for that LER, replacement of discs with stellite 21 discs, were not yet implemented for the Unit 1 SRV's and thus could not have prevented the current event.

LER 2-2007-006; identified multiple SRV setpoint drift for five of the eleven SRV's. Corrective actions for this LER, replacement of discs with stellite 21 discs, were not yet implemented for the Unit 2 SRV's and thus could not have prevented the current event.

LER 1-2006-003; which identified an error in reporting multiple SRV setpoint drift, also described results from the previous three outages where multiple SRV setpoint drift had occurred. Corrective actions for this LER focused on ensuring the proper reporting of SRV setpoint drift was performed.