

D. R. Madison (Dennis)
Vice President - Hatch

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May 27, 2008

Docket No.: 50-321

NL-08-0801

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

Edwin I. Hatch Nuclear Plant – Unit 1
Licensee Event Report
Corrosion Induced Bonding Results in Safety Relief Valve Lift 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 lift setpoint drift in more than one Safety Relief Valve.

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

Sincerely,

A handwritten signature in black ink that reads "Dennis Madison". The signature is written in a cursive style with a large, stylized "D" and "M".

D. R. Madison
Vice President – Hatch

DRM/MJK/daj

Enclosure: LER 1-2008-002

cc: Southern Nuclear Operating Company
Mr. J. T. Gasser, Executive Vice President
Mr. D. H. Jones, 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 1

2. DOCKET NUMBER

05000 321

3. PAGE

1 OF 4

4. TITLE

Corrosion Induced Bonding Results in Safety Relief Valve Lift 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	29	2008	2008	- 002 -	0	05	27	2008	FACILITY NAME	DOCKET NUMBER 05000	
FACILITY NAME											DOCKET NUMBER 05000

9. OPERATING MODE

1

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 |

10. POWER LEVEL

060

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME

Edwin I. Hatch / Kathy Underwood, Performance Analysis 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 29, at approximately 1104 EDT, Unit 1 was at 1697 CMWTh, which is 60.5 percent of rated thermal power (RTP). On that day, it was identified during bench testing that two Safety Relief Valves (SRVs) experienced setpoint drift that exceeded the allowable plant Technical Specifications (TS) limit. At the conclusion of bench testing, a total of three of the eleven SRVs were identified as having setpoint drift in excess of the TS limit.

The root cause of the SRV setpoint drift is corrosion-induced bonding between the pilot disc and seating surface.

Immediate corrective actions for this event included replacement of all eleven SRVs with refurbished pilot valves which have pilot discs made from Stellite 21 material, which is more resistant to corrosion bonding in this application. In addition, the pilot discs on the eleven valves that were removed for testing will be replaced with pilot discs made from Stellite 21. Evaluation of additional actions to further improve SRV performance will be tracked under the plant's corrective action program.

LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET

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Edwin I. Hatch Nuclear Plant Unit 1	05000321	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2	OF 4
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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 (EIS Code XX).

DESCRIPTION OF EVENT

On March 29, at approximately 1104 EDT, Unit 1 was at 1697 CMWTh, which is 60.5 percent RTP. On that day it was identified during bench testing that two Safety Relief Valves (SRVs) (EIS Code SB) experienced setpoint drift that exceeded the allowable plant Technical Specifications (TS) limit. At the conclusion of bench testing, a total of three of the eleven SRVs were identified as having setpoint drift in excess of the TS limit which is +/- 3%. The setpoint for each of the eleven SRVs is 1150 +/- 34.5 psig. The following is a tabulation of the test results for the eleven SRVs:

MPL Number	Pilot Serial Number	As-Found Lift Pressure	Percent Drift
1B21-F013A	1190	1165	101.3
1B21-F013B	1003	1316	114.4
1B21-F013C	312	1177	102.3
1B21-F013D	1009	1161	101.0
1B21-F013E	311	1182	102.8
1B21-F013F	1227	1162	101.0
1B21-F013G	1226	1175	102.2
1B21-F013H	1011	1187	103.2
1B21-F013J	303	1180	102.6
1B21-F013K	1008	1175	102.2
1B21-F013L	301	1230	107.0

These valves were removed from service during the Spring 2008 refueling outage and replaced with like kind valves that were serviced and tested in accordance with plant procedures. These replacement valves had pilot discs made from Stellite 21 material, which is more resistant to corrosion bonding in this application.

CAUSE OF EVENT

The cause of the SRV setpoint drift exceeding the allowable plant TS limit is corrosion-induced bonding between the pilot disc and seating surface.

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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 11 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 EHS 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 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 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 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 SRV actuation pressures has demonstrated that the resultant peak pressure was within the ASME Code limit. Furthermore, the plant TS overpressure safety limit of 1325 psig 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 for the MSIV Closure AOO with the MSIV position switches providing the reactor protection system trip, the resultant dome pressure was within the plant TS Safety Limit.

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.

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CORRECTIVE ACTIONS

All eleven pilot valves have been replaced with refurbished pilot valves which have pilot discs made from Stellite 21 material.

Each of the eleven 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.

SNC will continue to participate in industry working groups in evaluating potential solutions to this industry issue. Any additional actions to further improve SRV performance will be tracked under the plant's corrective action program.

ADDITIONAL INFORMATION

Other Systems Affected: None

Failed Components Information:

Master Parts List Number: 1B21-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 2-2007-006, identified multiple SRV setpoint drift for five of the eleven SRV's. Corrective actions for that LER were not yet implemented for the Unit 1 SRV's and thus could not have prevented this event. The eleven pilot discs replaced this outage on Unit 1 were replaced with pilot discs made from Stellite 21 material.

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 that LER focused on ensuring proper reporting of SRV setpoint drift was performed.