

CENGSM

a joint venture of



**Constellation
Energy**



edf

CALVERT CLIFFS NUCLEAR POWER PLANT

May 2, 2013

U.S. Nuclear Regulatory Commission
Washington, DC 20555

ATTENTION: Document Control Desk

SUBJECT: Calvert Cliffs Nuclear Power Plant
Unit No. 2; Docket No. 50-318; License No. DPR 69
Licensee Event Report 2013-002, Revision 00
Pressurizer Safety Valve Setpoint High Due to Time-Related Drift

The attached report is being sent to you as required by 10 CFR 50.73. Should you have questions regarding this report, please contact Mr. Douglas E. Lauver at (410) 495-5219.

Very truly yours,

A handwritten signature in black ink, appearing to read "Mark D. Flaherty".

Mark D. Flaherty
Plant General Manager

MDF/CAN/bjd

Attachment: As stated

cc: N. S. Morgan, NRC
W. M. Dean, NRC

Resident Inspector, NRC
S. Gray, DNR

IE22
NRC

LICENSEE EVENT REPORT (LER)

(See reverse 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 Records and FOIA/Privacy Section (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet 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 Calvert Cliffs Nuclear Power Plant, Unit 2	2. DOCKET NUMBER 05000 318	3. PAGE 1 OF 05
--	-------------------------------	--------------------

4. TITLE
Pressurizer Safety Valve Setpoint High Due to Insufficient Margin

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	2013	2013	- 002 -	00	05	02	2013		05000
									FACILITY NAME	DOCKET NUMBER
										05000

9. OPERATING MODE
6

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

10. POWER LEVEL 0	<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 C.A. Neyman, Senior Engineering Analyst	TELEPHONE NUMBER (Include Area Code) 410-495-3507
--	--

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
X	AB	RV	D243	Y					

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, 2013, during scheduled testing at an offsite testing facility, the as-found lift setting for pressurizer safety valve, serial number BN04375, was measured higher than the Technical Specification allowable value. The valve had been installed in Unit 2 at the 2RV200 location (Unit 2 pressurizer safety valve) and was removed during the 2013 Unit 2 refueling outage for scheduled testing and maintenance. No material conditions were found that contributed to the high setpoint discovered during the test. The apparent cause is insufficient margin to address time-related drift. Corrective actions are to increase the Technical Specification setpoint tolerance and revise the procurement engineering standard as-left margin. A similar event is documented in Licensee Event Report 318/2011-002. The cause for that event was setpoint variation.

LICENSEE EVENT REPORT (LER) CONTINUATION SHEET

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Calvert Cliffs Nuclear Power Plant, Unit 2	05000 318	YEAR	SEQUENTIAL NUMBER	REV NO.	2 of 05
		2013	-- 002 --	00	

I. DESCRIPTION OF EVENT

A. PRE-EVENT PLANT CONDITIONS

Unit 2 was in Mode 6, Refueling, on March 12, 2013.

B. EVENT

On March 12, 2013, during scheduled testing at the offsite testing facility, the as-found lift setting for pressurizer safety valve (PSV) Serial Number BN04375 was measured at a higher lift value than the Technical Specification allowable value. The valve had been installed in Unit 2 at the 2RV200 location (Unit 2 PSV) and was removed during the 2013 Unit 2 refueling outage for scheduled testing and maintenance. The valve was subsequently disassembled and inspected by the vendor and system manager. The valve was refurbished, reassembled, and as-left testing was performed on the valve with no issues noted. The apparent cause of BN04375 lifting high is insufficient margin to address time-related drift.

This event is applicable to Calvert Cliffs Nuclear Power Plant Unit 2 only.

C. INOPERABLE STRUCTURES, COMPONENTS, OR SYSTEMS THAT CONTRIBUTED TO THE EVENT

Unit 2 PSV BN04375 was determined to be inoperable while it had been installed in the plant. That inoperable condition is the basis for this report. The extent of condition review determined that the condition applied to BN04375 (2RV200) only.

D. DATES AND APPROXIMATE TIMES OF MAJOR OCCURRENCES:

December 2010 As-left testing performed on BN04375. The as-left setting was 2520 psia.

March 2011 BN04375 installed during the 2011 Unit 2 refueling outage.

March 12, 2013 BN04375 as-found lift tested at offsite vendor facility. As-found lift setting measured higher than Technical Specification allowable value.

March 2013 BN04375 disassembled, inspected, and refurbished at offsite vendor facility. As-left testing was performed with no issues noted.

April 2013 The apparent cause of BN04375 lifting high was determined to be insufficient margin to address time-related drift.

E. OTHER SYSTEMS OR SECONDARY FUNCTIONS AFFECTED

No other systems or secondary functions were affected.

LICENSEE EVENT REPORT (LER) CONTINUATION SHEET

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Calvert Cliffs Nuclear Power Plant, Unit 2	05000 318	YEAR	SEQUENTIAL NUMBER	REV NO.	3 of 05
		2013	-- 002 --	00	

F. METHOD OF DISCOVERY

The condition was self-identified during scheduled testing at the offsite testing facility.

G. MAJOR OPERATOR ACTION

Operator action was not required for the subject valve, as the valve was removed from the unit when the condition was identified.

H. SAFETY SYSTEM RESPONSES

There were no demands for safety system actuations during this event. The condition was discovered after the component was removed from the system.

II. CAUSE OF EVENT:

The apparent cause of BN04375 lifting high was insufficient margin to address time-related drift.

There were no deficiencies or mechanical binding identified during refurbishment of BN04375 which would indicate that the valve was assembled incorrectly or was degraded.

The pre-installation as-left testing was performed in December 2010 and the as-left pressure value of the PSV was within the range identified in Procurement Engineering Specification PES-5103 revision 27, "Repair/Overhaul for 2 1/2" Dresser Pressurizer Safety Valve." However, the time-related drift experienced by BN04375 exceeded the allowed as-found pressure range when tested in March, 2013.

III. ANALYSIS OF THE EVENT:

Each Unit at Calvert Cliffs Nuclear Power Plant has two PSVs (1/2RV200 and 1/2RV201) designed to limit Reactor Coolant System (RCS) pressure to a maximum of 110 percent of design pressure (2500 psia). The Technical Specification defined setpoints for these valves are as follows:

Valve	As-Found Lift Setting (psia)	As-Left Lift Setting (psia)
1/2RV200	>/= 2475 and </= 2550	>/= 2475 and </= 2525
1/2RV201	>/= 2514 and </= 2616	>/= 2540 and </= 2590

The Technical Specification Bases state that the as-found setpoints are the limits for operability, i.e., if a valve lifts outside of those setpoints it is inoperable. Calvert Cliffs owns eight PSVs, four sets of two that are rotated between a specific location.

BN04375 was installed at 2RV200 location in March 2011 and removed from the plant in March 2013. The as-found lift setting for BN04375 on March 12, 2013 was 2558 psia. This is higher

LICENSEE EVENT REPORT (LER) CONTINUATION SHEET

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Calvert Cliffs Nuclear Power Plant, Unit 2	05000 318	YEAR	SEQUENTIAL NUMBER	REV NO.	4 of 05
		2013	-- 002 --	00	

than the Technical Specification Surveillance Requirement allowed value of 2550 psia. The apparent cause (documented in Condition Report Number CR-2013-002415) was insufficient margin to account for time-related drift. The valve was disassembled and refurbished. No material condition was identified during refurbishment of BN04375 which would indicate that the valve was assembled incorrectly or was degraded. The valve subsequently passed the as-left testing on March 20, 2013.

With these test results, it is reasonable to conclude that for some period of time while BN04375 was installed in the plant, the lift setting was not within the Technical Specification Surveillance Requirement defined setpoint limit. With one PSV inoperable, the Technical Specification Limiting Condition for Operation (LCO) 3.4.10.A required action is to restore the valve to operable status within a 15 minute completion time. If this required action cannot be met, Technical Specification LCO 3.4.10.B requires the plant to be placed in Mode 3 within 6 hours and to reduce all RCS cold leg temperatures to ≤ 365 F (Unit 1) or ≤ 301 F (Unit 2) within 12 hours. The subject condition may have existed longer than the Technical Specification completion times for the associated required actions. The failure to meet the requirements of Technical Specification LCO 3.4.10 also would have required entry into Technical Specification LCO 3.0.3. Therefore, this event is reportable in accordance with 10 CFR 50.73(a)(2)(i)(B).

There were no actual nuclear safety consequences incurred from this event. Two PSVs (2RV200 and 2RV201) are located on the Unit 2 pressurizer to provide overpressure protection of the RCS. Only one of the PSVs was affected by the subject condition. BN04375 should have been considered inoperable for some period of time while installed during the applicable modes. While installed (2011-2013), BN04375 was susceptible to lifting later than assumed in the safety analyses. Realizing that the valve could have lifted late if challenged, a probabilistic risk assessment analysis was performed. The risk assessment determined that the estimated increase in core damage frequency and the estimated increase in large early release frequency are negligible for the subject condition.

This event has no impact on the NRC Reactor Oversight Process Performance Indicators.

IV. CORRECTIVE ACTIONS:

A. ACTION TAKEN TO RETURN AFFECTED SYSTEMS TO PRE-EVENT NORMAL STATUS:

1. BN04375 internal components were inspected and refurbished.
2. As-left testing of the refurbished valve was performed.

LICENSEE EVENT REPORT (LER) CONTINUATION SHEET

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Calvert Cliffs Nuclear Power Plant, Unit 2	05000 318	YEAR	SEQUENTIAL NUMBER	REV NO.	5 of 05
		2013	-- 002 --	00	

B. ACTION TAKEN OR PLANNED TO PREVENT RECURRENCE

1. Revise PSV Technical Specification Surveillance Requirement 3.4.10.1 As-Found lift settings.
2. Revise Procurement Engineering Standard PES-5103 as-left pressure range to provide greater margin.

V. ADDITIONAL INFORMATION

A. FAILED COMPONENTS:

The PSV is an American Society of Mechanical Engineers Boiler and Pressure Vessel Code approved PSV designed to limit RCS pressure to a maximum of 110 percent of design pressure. The PSV is a totally enclosed, back pressure compensated, spring-loaded valve. The valve is manufactured by Dresser Consolidated, Inc. (component manufacturer number D243). The valve affected by the subject condition is BN04375.

B. PREVIOUS LERs ON SIMILAR EVENTS

A review of Calvert Cliffs' events over the past several years was performed. A previous LER documented a similar event that occurred on Unit 2 in 2011 and was reported in LER 318/2011-002. In that event, no material conditions were present that caused the valve to lift outside of specifications. The affected valve was refurbished and retested. A root cause investigation was conducted and the site is in the process of completing the corrective action identified to revise Technical Specification 3.4.10 to increase PSV as-found setpoint tolerance.

C. THE ENERGY INDUSTRY IDENTIFICATION SYSTEM (EIIS) COMPONENT FUNCTION IDENTIFIER AND SYSTEM NAME OF EACH COMPONENT OR SYSTEM REFERRED TO IN THIS LER:

Component	IEEE 803 EIIS Function	IEEE 805 System ID
Pressurizer Safety Valves	RV	AB
Pressurizer	PZR	AB

D. SPECIAL COMMENTS

None