



September 3, 2010

NRC 2010-0137
10 CFR 50.73

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Point Beach Nuclear Plant, Unit 2
Docket 50-301
Renewed License No. DPR-27

Licensee Event Report 301/2010-002-00
Manual Reactor Trip Due to Failure of
Feedwater Regulating Valve Positioner

Enclosed is Licensee Event Report (LER) 301/2010-002-00 for Point Beach Nuclear Plant (PBNP), Unit 2. This LER documents a manual reactor scram from approximately 64% power due to feedwater regulating valve positioner failure. Pursuant to 10 CFR 50.73(a)(2)(iv)(A), the event is reportable as "... an event or condition that resulted in manual or automatic actuation of the Reactor Protection System: including reactor scram or reactor trip."

This submittal contains no new or revised regulatory commitments.

If you have questions or require additional information, please contact Mr. James Costedio at 920/755-7427.

Very truly yours,

NextEra Energy Point Beach, LLC

A handwritten signature in black ink, appearing to read "Larry Meyer".

Larry Meyer
Site Vice President

Enclosure

cc: Administrator, Region III, USNRC
Project Manager, Point Beach Nuclear Plant, USNRC
Resident Inspector, Point Beach Nuclear Plant, USNRC
PSCW

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 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 Point Beach Nuclear Plant – Unit 2	2. DOCKET NUMBER 05000301	3. PAGE 1 of 3
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4. TITLE
Manual Reactor Trip Due to Failure of Feedwater Regulating Valve Positioner

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
07	09	2010	2010	- 002 -	00	09	03	2010	FACILITY NAME	DOCKET NUMBER

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 checked="" 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 type="checkbox"/> 50.73(a)(2)(i)(B) <input type="checkbox"/> 50.73(a)(2)(v)(D) <div style="text-align: right; font-size: small;">Specify in Abstract below or in NRC Form 366A</div>
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12. LICENSEE CONTACT FOR THIS LER

NAME A. Moore	TELEPHONE NUMBER (Include Area Code) 920/755-7621
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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	SD	FCV	B040	Y					

14. SUPPLEMENTAL REPORT EXPECTED <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	15. EXPECTED SUBMISSION DATE MONTH: DAY: YEAR:
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On 7/9/10 at 06:47 CDT, control room personnel initiated a manual reactor trip of Unit 2 from approximately 64% power as a result of a failure of the range diaphragm assembly in the 'A' feedwater regulating valve (FRV) [FCV] positioner. Safety systems functioned as expected. Control rods fully inserted into the core.

Unit 2 was returned to full power on 7/11/10 at 07:57.

Corrective actions included rebuilding the failed 2CS-466 'A' FRV positioner and the 2CS-476 'B' FRV positioner.

This 60-day licensee event report is being submitted in accordance with the requirements of 10 CFR 50.73(a)(2)(iv)(A).

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Event Description:

At 06:37 CDT on 7/9/10, with Unit 2 at full power, 'A' steam generator (SG) feedwater regulating valve (FRV), 2CS-466, failed full open as a result of the failure of the range diaphragm assembly inside the valve positioner.

Plant operators reduced reactor power, placed 2CS-466 in manual control, and reduced turbine load by approximately 10%. Remote attempts to close 2CS-466 were unsuccessful. 'A' SG level continued to increase to the point where the SG high level bistable (2LC-461A) sent a shut signal to 2CS-466. When the bistable reset, 2CS-466 returned to the full open position. Control room personnel manually tripped the Unit 2 reactor at 06:47 CDT in accordance with station procedures.

Valve 2CS-466 was isolated by manually shutting the 2HX-1A SG 2CS-466 FRV inlet valve, 2CS-149. 'A' SG level was stabilized at 64% with the plant in MODE 3. An ENS (#46080) non-emergency notification was made in accordance with the requirements of 10 CFR 50.72(b)(2)(iv)(B) and 10 CFR 50.72(b)(3)(iv)(A).

This 60-day licensee event report is being submitted in accordance with the requirements of 10 CFR 50.73(a)(2)(iv)(A).

Event Analysis:

2FCV-466 (SG 'A' FRV) failed open as a result of the failure of its valve positioner range diaphragm assembly.

During normal operation, the diaphragm assembly acts as a pilot valve, controlling the amount of air pressure applied to the FRV actuator. As the pneumatic control signal varies, air pressure on one side of the diaphragm is either decreased (vented) or increased (air admitted) in pressure. Decreasing (venting) or increasing (admitting) air pressure causes a differential pressure across the diaphragm, shifting the diaphragm assembly to either lift or further seat a poppet valve. The poppet valve in turn controls the air admission pressure of the pneumatic line running to the FRV actuator to change the valve position. As the FRV position changes, the position is fed back via a ballistic cam assembly and lift arm. The ballistic cam ensures that the lift arm travel is sufficient when actuator pressure is raised (increasing pneumatic control pressure) or lowered (decreasing pneumatic control pressure), to modulate the air pressure being "fed back" or returned to the opposite side of the range diaphragm assembly for proper valve response. When the control air pressure and return air pressure equalize, the range diaphragm assembly is held steady with the poppet valve at its new equilibrium control position and the position of the FRV is held constant.

Inspection of the range diaphragm assembly revealed a tear in the assembly on the return air side. The return air pressure leak caused a differential pressure in the direction that unseated the poppet valve admitting control air and increasing the pressure in the pneumatic line running to the FRV actuator to open the valve. With no feedback, equilibrium could not be achieved, thus the valve failed open. When the 'A' SG high level bistable (2LC-461A) trip point was reached, independent solenoid valves opened, relieving the high pressure air from the positioner, allowing the air to vent and causing the 'A' SG FRV to shut.

NRC FORM 366A (9-2007)		U.S. NUCLEAR REGULATORY COMMISSION				
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When 'A' SG water level decreased below the bistable reset point, the condition cleared and the actuator re-pressurized the pneumatic line, re-opening the FRV. The oscillations continued briefly until operators manually tripped the reactor and isolated 2CS-466 by manually shutting the 2HX-1A SG 2CS-466 FRV inlet valve, 2CS-149.

2 FCV-466 (SG 'A' FRV) failed open due to a manufacturer defect associated with the valve positioner range diaphragm assembly. This component is non-safety-related and Engineering has concluded that this is an isolated occurrence.

Safety Significance:

The plant response following the manual reactor trip was as expected. Although the event was a manual actuation of the reactor protection system, plant equipment performance allowed a stable configuration to be maintained. Thus, the safety significance of the event was low. There was no impact on the health and safety of the public as a result of this event.

During the event and subsequent recovery actions, there was no loss of a safety-related system, structure, or component. Therefore, the event did not involve a Safety System Functional Failure. The positioner associated with the main feedwater regulating valves performs a function of normal steam generator water level control only. The safety function for the feedwater regulating valves is to close upon receipt of a safety injection signal to isolate feedwater flow and prevent possible containment overpressure or excessive reactor cooldown. Solenoid valves, which are independent of the position controller, perform the safety function and were not affected by the failure of the positioner diaphragm.

Cause:

The cause of the manual trip was a failed range diaphragm assembly inside the Bailey (B040) Model AP4 valve positioner. This failure allowed the valve to move to the full open position.

Corrective Action:

The following corrective actions were taken:

1. The 2CS-466 'A' FRV positioner was disassembled for troubleshooting and repairs. Inspections determined that the range diaphragm assembly return air diaphragm was unseated from its disc and the diaphragm had a tear in its side. The positioner was rebuilt using a new range diaphragm assembly.
2. As extent of condition, the 2CS-476 'B' FRV positioner was disassembled, inspected, and rebuilt. During disassembly and inspection, the range diaphragm assembly was found in good condition.

Previous Occurrences: There have been no similar LERs submitted within the last three years.

Failed Components Identified: 2P/P-466 feedwater regulating valve positioner [FCV]