NEXTera® ENERGY

POINT BEACH

January 30, 2015

NRC 2015-0007
10 CFR 50.73

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

Point Beach Nuclear Plant, Unit 1
Docket 50-266
Renewed License No. DPR-24

Licensee Event Report 266/2015-002-00
Unit 1 Manual Reactor Trip

Enclosed is Licensee Event Report (LER) 266/2015-002-00 for Point Beach Nuclear Plant, Unit 1. NextEra Energy Point Beach, LLC is providing this LER regarding the Unit 1 manual reactor trip.

This letter contains no new regulatory commitments.

If you have any questions please contact Mr. Michael Millen, Licensing Manager, at 920/755-7845.

Very truly yours,

NextEra Energy Point Beach, LLC

Eric McCartney
Site Vice President

Enclosure

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

NRC FORM 366 (02-2014) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 01/31/2017

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 FOIA, Privacy and Information Collections Branch (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.

LICENSEE EVENT REPORT (LER)

(See Page 2 for required number of digits/characters for each block)

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Point Beach Nuclear Plant Unit 1	05000266	1 OF 3

4. TITLE

Manual Reactor Trip

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
									NA	NA
12	02	2014	2015	002	00	01	30	2015	FACILITY NAME: NA	DOCKET NUMBER: NA

9. OPERATING MODE	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: *(Check all that apply)*			
Mode 1	☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)
	☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
	☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
	☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
10. POWER LEVEL	☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☒ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
62%	☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(A)	☐ 73.71 (a)(4)
	☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(B)	☐ 73.71 (a)(5)
	☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ OTHER
	☐ 20.2203(a)(2)(vi)	☐ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME	TELEPHONE NUMBER (Include Area Code)
Thomas P. Schneider, Senior Licensing Engineer	920-755-7797

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

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
E	SD	MO	W120	Y	E	SD	P	B580	Y

14. SUPPLEMENTAL REPORT EXPECTED	15. EXPECTED SUBMISSSION DATE	MONTH	DAY	YEAR
YES (*If yes, complete 15. EXPECTED SUBMISSION DATE*) X NO		NA	NA	NA

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

On December 2, 2014, operators commenced a rapid power reduction of Unit 1 due to noted degradation of Unit 1B Condensate Pump. At 2050 on December 2, 2014, with Unit 1 in Mode 1 at 62% power, operators initiated a manual reactor trip of Unit 1 following securing of the Unit 1B Condensate Pump due to imminent failure. The Auxiliary Feedwater Pumps started as expected on low steam generator level experienced due to the reduced steam demand from the turbine trip in response to the reactor trip. All other plant systems functioned as required.

After the reactor trip, feedwater pump suction pressure remained low. The decision was made to secure both Main Steam Generator Feedwater Pumps. The Main Steam Generator Feedwater Pump A was manually secured. Prior to securing the Main Steam Generator Feedwater Pump B, it automatically tripped. All control rods fully inserted in the core due to the manual trip. There was no Emergency Core Cooling System actuation. Offsite power was maintained throughout the event. The Main Steam Generator Feedwater Pumps were available to be restarted due to the recovered feedwater suction pressure from the running Condensate Pump A.

This event is being reported pursuant to 10 CFR 50.73(a)(2)(iv)(A) for both the manual RPS actuation and also for the automatic initiation of Auxiliary Feedwater.

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NARRATIVE

Description of the Event:

At 2036 on December 2, 2014, an Operator in the field noted the Unit 1 Condensate Pump B had unusual noise and vibration. The Operator also noted the lower motor bearing oil level was lower than that noted at the start of the shift. At 2039 Operators entered AOP-17A U1, RAPID POWER REDUCTION and AOP-2B U1, FEEDWATER SYSTEM MALFUNCTION due to high vibration and low oil level in the Unit 1B Condensate Pump motor. It was noted that Condensate Pump B discharge pressure was 300 psig and the Condensate Pump A discharge pressure was 370 psig. At 2048 Operations observed Condensate Pump B motor current had exceeded 200 amps. At 2050 Operations started to use turbine manual control to reduce load in preparation for removing the Condensate Pump B from service. Reports from the field indicated the need to remove the Condensate Pump B from service immediately based on degrading conditions and report of smoke from the motor bearings.

At 2050 on December 2, 2014 with Unit 1 in Mode 1 at 62% power, operators initiated a manual reactor trip of Unit 1 due to imminent failure of the Condensate Pump B motor and secured the Condensate Pump B. The Auxiliary Feedwater Pumps started as expected on low steam generator level experienced due to the reduced steam demand from the turbine trip in response to the reactor trip. Operators entered EOP-0, REACTOR TRIP OR SAFETY INJECTION for Unit 1.

After the reactor trip, feedwater pump suction pressure remained low. The decision was made to secure both Main Steam Generator Feedwater Pumps. The Main Steam Generator Feedwater Pump A was manually secured. Prior to securing the Main Steam Generator Feedwater Pump B, it automatically tripped. All other plant systems functioned as required. All control rods fully inserted in the core due to the manual trip. There was no Emergency Core Cooling System actuation. Offsite power was maintained throughout the event. The Main Steam Generator Feedwater Pumps were available to be restarted due to the recovered feedwater suction pressure from the running Condensate Pump A.

The Unit 1B Condensate pump and motor were replaced. The condensate pump and motor assembly were returned to service and the unit returned to full power operations.

An event notification was made on December 2, 2014, 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).

Cause of the Event:

The cause of the manual reactor trip was due to the imminent failure of the Unit 1 Condensate Pump B Assembly. The root cause of the Condensate Pump B failure has not been determined, failure analysis is ongoing. Onsite visual inspections of the pump and motor provided indication of a mispositioned motor thrust bearing shoe from the runner. The thrust shoe was disconnected from the pivot pin on the motor thrust bearing. An additional motor thrust bearing shoe was separated from the runner.

Analysis of the Event:

The condensate and feedwater system is comprised of two half-capacity condensate pumps that supply net positive suction head to two half-capacity main steam generator feedwater pumps. The condensate pumps take suction of subcooled liquid in the condenser hotwell and deliver this fluid to the suction of the feedwater pumps. The feedwater pumps deliver this fluid to the secondary side of the steam generators. The flow is used to remove the heat generated in the reactor and to produce steam used for power production.

The degrading Condensate B pump and motor assembly required the immediate removal from service. A reduction in reactor power was necessary to support the continued operation, considering limitations of a single train of condensate and feedwater. At the time when the condensate pump assembly failure was imminent, the reactor power was not low enough to support removal of one of the two operating condensate pumps, which necessitated a manual reactor trip.

The Auxiliary Feedwater Pumps started as expected on low steam generator level experienced due to reducing steam demand from the turbine trip in response to the reactor trip.

After the reactor trip, feedwater pump suction pressure remained low. The decision was made to secure both Main Steam Generator Feedwater Pumps. The Main Steam Generator Feedwater Pump A was manually secured. Prior to securing the Main Steam Generator Feedwater Pump B, it automatically tripped. All other plant systems functioned as required. All control rods fully inserted in the core due to the manual trip. There was no Emergency Core Cooling System actuation. Offsite power was maintained throughout the event. The Main Steam Generator Feedwater Pumps were available to be restarted due to the recovered feedwater suction pressure from the running Condensate Pump A.

The Unit 1B Condensate pump and motor were replaced and the Unit 1 reactor returned to full power.

Corrective Actions:

The Unit 1B Condensate pump and motor were replaced. A Maintenance Rule (a)(1) action plan is currently in place for the Condensate System to address multiple plant de-rates greater than 20% power. The ongoing Root Cause Evaluation includes an action to review the root cause for potential revision of the Maintenance Rule (a)(1) action plan. It is not anticipated that a supplemental LER will be required.

Safety Significance:

During the event and subsequent recovery actions, there was no loss of any safety systems, structures or components. The Auxiliary Feedwater Pumps started as expected and were in operation when the Main Steam Generator Feedwater Pumps were secured. The Main Steam Generator Feedwater Pumps remained available to remove decay heat after the reactor trip. All other plant systems functioned as required following the manual reactor trip. The operating crew responded appropriately by manually actuating the reactor protection system to shut down the reactor. All control rods fully inserted into the core as designed to control reactivity and temperature of the core. The reactivity effects during this particular event had no impact on the safety of the core and thus, the event was determined to be of very low safety significance. There was no impact on the health and safety of the public as a result of this event.

Similar Events:

There have been similar events of manual reactor trips in the past three years. However, none of the previous occurrences were due to the same initiating event.

Component Failure Data:

Condensate Pump: Flowserve Pumps – 28APKD-7
Condensate Motor: TECO Westinghouse Electric – MS 35675