Clinton Power Station
8401 Power Road
Clinton, IL 61727

U-604333
February 1, 2017

10CFR50.73
SRRS 5A.108

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

Clinton Power Station, Unit 1
Facility Operating License No. NPF-62
NRC Docket No. 50-461

Subject: Licensee Event Report 2016-012-00

Enclosed is Licensee Event Report (LER) 2016-012-00: Residual Heat Removal (RHR) "C" Pump Failure During Surveillance Testing as a Result of Breaker Latch Check Switch Adjustment Results in a Condition Prohibited by Technical Specifications. This report is being submitted in accordance with the requirements of 10 CFR 50.73.

There are no regulatory commitments contained in this report.

Should you have any questions concerning this report, please contact Mr. Dale A. Shelton, Regulatory Assurance Manager, at (217) 937-2800.

Respectfully,

Theodore R. Stoner
Site Vice President
Clinton Power Station

KP/cac

Attachment: Licensee Event Report 2016-012-00

cc:
Regional Administrator— NRC Region III
NRC Senior Resident Inspector - Clinton Power Station
Office of Nuclear Facility Safety — Illinois Emergency Management Agency

IE22
NRR

NRC FORM 366 (06-2016) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 10/31/2018

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 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
Clinton Power Station, Unit 1	05000461	1 OF 4

4. TITLE

Residual Heat Removal (RHR) "C" Pump Failure During Surveillance Testing as a Result of Breaker Latch Check Switch Adjustment Results in a Condition Prohibited by Technical Specification

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
										05000
12	05	2016	2016	- 012	- 00	02	01	2017	FACILITY NAME	DOCKET NUMBER 05000

9. OPERATING MODE	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: *(Check all that apply)*			
1	☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
	☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
	☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
	☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
10. POWER LEVEL	☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
	☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
	☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(C)	☐ 73.77(a)(1)
099	☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(D)	☐ 73.77(a)(2)(i)
	☐ 20.2203(a)(2)(vi)	☒ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(vii)	☐ 73.77(a)(2)(ii)
		☐ 50.73(a)(2)(i)(C)	☐ OTHER Specify in Abstract below or in NRC Form 366A	

12. LICENSEE CONTACT FOR THIS LER

LICENSEE CONTACT	TELEPHONE NUMBER *(Include Area Code)*
Dale A. Shelton, Regulatory Assurance Manager	217-937-2800

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
D	BO	BKR	W	N					

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

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

On December 5, 2016 at 2011 hours during a surveillance test of the Residual Heat Removal (RHR) "C" pump, a Westinghouse DHP Breaker for the RHR "C" pump failed to close. This occurrence resulted in a failure of RHR "C" pump to start. The pump was declared INOPERABLE and Technical Specification (TS) Limiting Condition of Operation (LCO) 3.5.1, "Emergency Core Cooling System –Operating," Required Action A.1 was entered to restore the pump to OPERABLE status in seven days. Performance records indicate the breaker was installed on March 11, 2016 in the RHR "C" pump cubicle and successfully operated on March 11, June 9, and September 6, 2016, prior to failure. An investigation determined that the breaker latch check switch contacts were not closed and that the latch check switch setting was out of procedural limits. The most likely time that the switch would have become out of adjustment would have been during transport of the breaker to the RHR "C" pump breaker cubicle on March 11, 2016. The apparent cause of the failure was an inadequate verification of the latch check switch setting performed prior to installation of the breaker in the cubicle. Corrective measures have been initiated that include revising plant procedures to record latch check switch adjustment value. The condition described in this report is reportable under 10CFR50.73(a)(2)(i)(B) as an "operation or condition which was prohibited by the plant's Technical Specifications."

LICENSEE EVENT REPORT (LER) CONTINUATION SHEET

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Clinton Power Station, Unit 1	05000461	2016	- 012	- 00

NARRATIVE

PLANT AND SYSTEM IDENTIFICATION

General Electric—Boiling Water Reactor, 3473 Megawatts Thermal Rated Core Power
Energy Industry Identification System (EIIS) codes are identified in the text as [XX]

EVENT IDENTIFICATION

Residual Heat Removal (RHR) "C" Pump Failure During Surveillance Testing as a Result of Breaker Latch Check Switch Adjustment Results in a Condition Prohibited by Technical Specifications

A. Plant Operating Conditions before the Event

Unit: 1	Event Date: 12/05/16	Event Time:	2011
Mode: 1	Mode Name: Power Operation	Reactor Power:	99 percent

B. DESCRIPTION OF EVENT

On December 5, 2016 at 2011 hours, Westinghouse DHP Breaker 1AP09EF for the Residual Heat Removal (RHR) "C" pump failed to close during the operability surveillance. During the test, the pump control switch was held in the start position for approximately 3 seconds with no indication of a pump start. When the control switch was released to the auto position, the pump trip indication illuminated. The RHR "C" pump was declared INOPERABLE and Technical Specification (TS) Limiting Condition of Operation (LCO) 3.5.1, "Emergency Core Cooling System-Operating", Required Action A.1 was entered to restore RHR "C" to OPERABLE status within seven days.

During the event investigation, the breaker charging springs were found to be charged and the latch check switch contacts open with the breaker installed in the cubicle. The function of the latch check switch is to indicate when the circuit breaker is "ready to close," providing a permissive for the breaker closure. In restoring the RHR "C" pump to OPERABLE status, the latch check switch was measured to be zero inches overtravel. The setting was adjusted to an overtravel value of 3/16 inch past the point that the contacts are closed as specified in plant procedures. Technicians that adjusted the latch check switch during the post event investigation indicated that the contact resistance was acceptable and the switch operated mechanically as expected. The mounting screws were subsequently verified to be tight following the failure. The breaker was placed back in service and post maintenance testing of RHR pump "C" was concluded satisfactorily. The RHR "C" pump was declared OPERABLE on December 6, 2016 at 0822 hours.

NARRATIVE

Breaker performance records indicate that the breaker was prepared for installation in the RHR "C" pump cubicle on January 19, 2016. The latch check switch setting was measured and recorded at 3/16 inch overtravel at that time. The breaker was installed in the RHR "C" pump cubical on March 11, 2016. On this date, the latch check switch setting before the installation was verified to be within specification but the value was not recorded. The most likely time that the switch would have become out of adjustment would have been during transport to the RHR "C" pump breaker cubicle on March 11, 2016. The latch check switch verification was not sufficient to identify an out of adjustment condition.

Following installation on March 11, 2016, the breaker operated satisfactorily on March 11, 2016, June 9, 2016, and September 6, 2016 prior to the failure. Since it is unlikely that the switch adjustment would change without breaker operation, it's assumed that switch contacts failed to close following the last successful surveillance test on September 6, 2016. Consequently, since the RHR "C" pump breaker would likely not closed since its last satisfactory surveillance on September 6, 2016 until the failed RHR pump operability surveillance on December 5, 2016, this constitutes a condition prohibited by Technical Specifications.

C. CAUSE OF EVENT

The cause of this event is that an inadequate latch check switch verification was performed prior to installation of the breaker into the cubicle. The required switch adjustment value of 1/8 to 3/16 inch past the point that the contacts are closed was verified but not recorded. As a result, a supervisory review of the switch adjustment value could not be performed and the out adjustment condition went undetected.

D. SAFETY ANALYSIS

There were no safety consequences associated with the event described in this report. The event is reportable under 10CFR50.73(a)(2)(i)(B) as an "operation or condition which was prohibited by the plant's Technical Specifications." Failure of the RHR pump "C" to start during the surveillance test was a condition prohibited by the TS; however, this surveillance failure did not adversely affect the ability the plant to safely shutdown in the event of an accident. When the pump was declared INOPERABLE, TS 3.5.1, Required Action A.1 was entered to restore it to OPERABLE status. RHR "C" was restored in approximately 12 hours. The RHR system safety function to transfer fission product decay heat and other residual heat from the reactor core at a rate such that specified acceptable fuel design limits and the design conditions of the reactor coolant pressure boundary was not jeopardized. Since RHR "A", "B" and low pressure core spray pumps remained OPERABLE during this event, a redundancy of plant components and features remained available to assure that operation the RHR system safety function could be accomplished.

LICENSEE EVENT REPORT (LER) CONTINUATION SHEET

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NARRATIVE

E. CORRECTIVE ACTIONS

Actions have been initiated to revise plant procedures to ensure the tightness of the mounting screws of the latch check switch prior to measuring the adjustment value and record the latch check switch setting prior to breaker installation. A sample of completed latch check switch settings will be reviewed for similar inadequacies.

F. PREVIOUS SIMILAR OCCURENCES

No previous Event Reports were identified which detail an occurrence similar to the event described in this report.

G. COMPONENT FAILURE DATA

Manufacturer: Westinghouse
Component Type: DHP 6900, 4160 Volt Power Circuit Breaker