Clinton Power Station
8401 Power Road
Clinton, IL 61727

U-604272
April 13, 2016

OCFR5O.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 2016-002-00

Enclosed is Licensee Event Report (LER) 2016-002-00: Trip of Fuel Building Ventilation Exhaust Fan Due to Moisture Formation Resulting in the Loss of Secondary Containment Vacuum. 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 Shelton, Regulatory Assurance Manager, at (217) 937-2800.

Respectfully,

Theodore R. Stoner
Site Vice President
Clinton Power Station

KP/bsz

Enclosure: Licensee Event Report 2016-002-00

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 (11-2015) 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 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)

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4. TITLE

Trip of Fuel Building Ventilation Exhaust Fan Due to Moisture Formation Resulting In the Loss of Secondary Containment Vacuum

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
02	13	2016	2016	- 002	- 00	04	13	2016		05000
									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
B									

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 02/13/2016 at 0206 (CST) the plant was at 99 percent reactor power when Fuel Building Exhaust Fan "A" (1VF04CA) tripped due to indicated high Secondary Containment (SC) vacuum during routine venting of the drywell per plant procedures. Following the fan trip, SC vacuum degraded, eventually exceeding the Technical Specification (TS) limit of 0.25 inch vacuum water gauge. The TS Limiting Condition for Operation (LCO) 3.6.4.1 Required Action A.1 and an Emergency Operating Procedure were entered. Plant Operations subsequently started the Standby Gas Treatment System (VG) and restored Secondary Containment within TS limits. An investigation determined that ice formed in the sensing line causing an inaccurate Secondary Containment vacuum reading on the indication and control loop for 1VF04CA. This caused 1VF04CA to trip which in turn led to a loss of Secondary Containment vacuum. A cause evaluation established that prior instrument sensing line designs did not recognize the potential to trap water in the sensing line to the Secondary Containment pressure instrumentation. Corrective actions will include completing an engineering change to install an alternate Fuel Building Ventilation (VF) system sensing line design to prevent moisture accumulation line to ensure accurate indication and control of Secondary Containment pressure. This event is reportable under 10 CFR 50.73(a)(2)(v)(C).

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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

Trip of Fuel Building Ventilation Exhaust Fan Due to Moisture Formation Resulting In the Loss of Secondary Containment Vacuum

A. Plant Operating Conditions before the Event

Unit: 1	Event Date: 2/13/16	Event Time:	0206
Mode: 1	Mode Name: Power Operation	Reactor Power:	99 percent

B. DESCRIPTION OF EVENT

On February 13, 2016 at 0206, during routine venting of the drywell, the main control room (MCR) received a fuel building ventilation (VF) system alarm. At 0208 Fuel Building exhaust fan 1VF04CA tripped and 'B' exhaust fan 1VF04CB auto started, however, secondary containment vacuum continued to degrade. Secondary Containment was declared inoperable when the vacuum degraded to less than 0.25 inch water gauge (WG). TS LCO 3.6.4.1 "Secondary Containment", Required Action A.1 was entered. When Secondary Containment differential pressure value became greater than 0 inch of vacuum WG with 1VF04CB fan operating, procedure EOP-8, Secondary Containment Control, was entered.

At 0212, Secondary Containment vacuum was at 0.15 inch WG with 1VF04CB running and 1VF04CA in standby. With Secondary Containment vacuum still outside TS limits, the MCR secured the VF exhaust fans at 0255 per CPS 3404.01, Fuel Building HVAC (VF). At 0256 Standby Gas Treatment System (VG) Train A was started per CPS 3319.01, Standby Gas Treatment (VG).

Secondary Containment vacuum was restored to greater than 0.25 inch WG at 0257 and Secondary Containment was declared operable. TS LCO 3.6.4.1 Required Action A.1 and EOP-8 were exited.

A troubleshooting team determined that ice had formed resulting in a blockage in the low side sensing line to the environment as the most probable cause of the event. Other locations for sensing line clogging were also investigated.

After disassembling, thawing, and cleaning the intake tubing, technicians performed a blowdown of the instrumentation tubing. Following the blowdown, Operations successfully restarted VF exhaust fan 1VF04CA. Secondary Containment vacuum was restored to normal.

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The event described in this LER was documented in Event Notification No. 51732 which was provided to the NRC on February 13, 2016 at 0909.

C. CAUSE OF EVENT

An investigation identified that ice formed in the low side of the VF 'A' sensing line causing an inaccurate Secondary Containment vacuum reading on both indication and control loop for the 1VF04CA. This caused 1VF04CA to trip which in turn led to a loss of Secondary Containment vacuum. Moisture had collected in the sensing line and froze due to externally cold weather conditions. At the time of the event, the outside air temperature was 8 degrees Fahrenheit. A subsequent causal evaluation established that prior instrument sensing line designs did not recognize the potential to trap water in the sensing line as the cause of this event.

D. SAFETY ANALYSIS

This event is reportable in accordance with 10CFR50 50.73(a)(2)(v)(C) as a condition that could have prevented fulfillment of a safety function to control the release of radioactive material because secondary containment was declared inoperable.

The VG system was fully operable at the time of the event and capable of performing the required safety function. Operations entered EOP-8 for Secondary Containment vacuum less than minus 0.25 inch water gauge and entered TS LCO 3.6.4.1, Required Action A.1. Secondary containment vacuum was restored to within TS limits within the completion time requirement. The secondary containment vacuum is kept slightly negative relative to the atmospheric pressure to prevent leakage to the atmosphere. The VF system is a non-safety ventilation system which is normally in service to maintain secondary containment vacuum. The VG System is the safety-related system which is relied upon to perform this function following an accident. During the event the VG system was placed in service and restored Secondary Condition to operability consistent with its safety function. Therefore, the ability of the station to maintain secondary containment in an accident scenario was never jeopardized or challenged by the VF system fan trip.

E. CORRECTIVE ACTIONS

Technicians disassembled, thawed, and cleaned the intake tubing. Afterwards, they performed a blowdown of the instrumentation tubing. Following this activity, Operations successfully restarted the VF fan. Interim measures to prevent a recurrence of icing included the installation of heat tape inside the sensing line and a heat source (light bulb) inside the protective housing. An Engineering Change (EC) will be completed to install an alternate VF sensing line design to prevent moisture accumulation in the instrument sensing line and ensure accurate indication and control of the Secondary Containment pressure. A subsequent review of VF performance will be conducted to ensure the modification effectively prevented moisture accumulation.

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NARRATIVE

F. PREVIOUS SIMILAR OCCURENCES

A review for previous occurrences did not identify a similar licensee event report at CPS.

CPS Issue Report (IR) 2613542 identified a similar condition on January 17, 2016 in which VF Ventilation System exhaust fans repeatedly tripped on low Fuel Building vacuum. The VG System was started to maintain secondary containment vacuum. However, in this case, Secondary Containment vacuum was maintained greater than minus 0.25 inch WG, and therefore not reportable. VF vacuum (Computer point VF-BA201) and Containment Building (VR) vacuum (Computer point VR-BA201) were reading outside their normal operating bands. The apparent cause of the VF exhaust fans tripping was due to blockage/moisture in the vacuum sensing line. This was confirmed when the sensing line was blown down to restore the indicated VF vacuum to normal operating band. Corrective actions resulting from this event included scheduling a blowdown of the instrument sensing line during the upcoming refueling outage and evaluating long term plans to resolve this recurring condition.

This occurrence is directly applicable to the conditions noted in this LER and documents a prior occurrence of the same failure mode earlier in 2016.

G. COMPONENT FAILURE DATA

There were no component failures associated with this event.

Clinton Power Station
8401 Power Road
Clinton, IL 61727

ExelonGeneration.

U-604274
April 13, 2016

10CFR50.74(a)(b)

Regional Administrator, Region III
U.S. Nuclear Regulatory Commission
2443 Warrenville Road
Lisle, Illinois 60532-4352

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

Subject: Clinton Power Station Change in Operator Status

This letter provides formal notification in accordance with 10CFR50.74, "Notification of change in operator or senior operator status." In part, 10CFR50.74 states the following:

> Each licensee shall notify the appropriate Regional Administrator as listed in appendix D to part 20 of this chapter within 30 days of the following in regard to a licensed operator or senior operator:
>
> (a) Permanent reassignment from the position for which the licensee has certified the need for a licensed operator or senior operator under § 55.31(a)(3) of this chapter;
> (b) Termination of any operator or senior operator;

The Senior Reactor Operator Mr. Daniel M. Hunt, Docket No. 55-61816 and License No. SOP-31715-2, has accepted a position outside of Clinton Power Station, Exelon Generation Company as of March 31, 2016.

This license will no longer by necessary as originally certified under 10CFR55.31(a)(3).

There are no regulatory commitments contained in this letter.

If you have any questions, please contact Mr. Dale Shelton, Regulatory Assurance Manager, at (217) 937-2800.

Respectfully,

Theodore R. Stoner
Site Vice President
Clinton Power Station

dra/bsz

cc: NRC Senior Resident Inspector - Clinton Power Station
Office of Nuclear Facility Safety - Illinois Department of Nuclear Safety