



Exelon Generation®

Clinton Power Station
8401 Power Road
Clinton, IL 61727

U-604286
May 26, 2016

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 2016-004-00

Enclosed is Licensee Event Report (LER) 2016-004-00: Trip of the Emergency Reserve Auxiliary Transformer Static VAR Compensator Causes Positive Secondary Containment Pressure Following Lightning Strike on 138 kV Offsite Source. 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/cac

Attachment: Licensee Event Report 2016-004-00

cc:

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

IE22
NRR

**LICENSEE EVENT REPORT (LER)**(See Page 2 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 FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to Infocollect.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

Clinton Power Station, Unit 1

2. DOCKET NUMBER

05000461

3. PAGE

1 OF 4

4. TITLE

Trip of Emergency Reserve Auxiliary Transformer Static VAR Compensator Causes Positive Secondary Containment Pressure Following Lightning Strike on 138 kV Offsite Source

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	30	2016	2016	- 004	- 00	5	27	2016	FACILITY NAME	DOCKET NUMBER
										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	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)
	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)
10. POWER LEVEL 099	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)
	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input checked="" type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> 73.77(a)(1)
	<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)(D)	<input type="checkbox"/> 73.77(a)(2)(i)
	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> 73.77(a)(2)(ii)
	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> OTHER	Specify in Abstract below or in NRC Form 366A	

12. LICENSEE CONTACT FOR THIS LER

LICENSEE CONTACT

Dale A. Shelton, Regulatory Assurance Manager

TELEPHONE NUMBER (Include Area Code)

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
C									

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 30, 2016, at approximately 1545 CDT, the Main Control Room (MCR) received numerous annunciators that indicated a trip of the Emergency Reserve Auxiliary Transformer (ERAT) Static VAR Compensator (SVC) caused by a voltage transient on the 138 kV supply. Technical Specification (TS) Limiting Condition for Operation (LCO) 3.8.1, AC Sources-Operating, Required Action A.1 and A.2 were entered. As a result of the voltage transient, the Division 1 Fuel Building ventilation (VF) system isolation dampers closed causing a trip of VF supply and exhaust fans. With no operating VF fans, Secondary Containment (SC) vacuum rose to slightly greater than 0 inches water gauge (WG) which exceeded the TS requirement of greater than 0.25 inches vacuum WG. The MCR entered Emergency Operating Procedure (EOP)-8, Secondary Containment Control and TS LCO 3.6.4.1, Secondary Containment, Required Action A.1. The likely cause of the voltage transient on the 138 kV line was a lightning strike that occurred during thunderstorms in the area on the day of the event. SC vacuum was restored within TS requirements at 1550 CDT by starting the Standby Gas Treatment System. Corrective actions have been initiated to improve reliability of the 138 kV source. This event is being reported as a condition that could have prevented fulfillment of a safety function under 10 CFR 50.73(a)(2)(v)(C).

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

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 infocollections.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.

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NARRATIVE**PLANT AND SYSTEM IDENTIFICATION**

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

EVENT IDENTIFICATION

Trip of Emergency Reserve Auxiliary Transformer Static VAR Compensator Causes Positive
Secondary Containment Pressure Following Lightning Strike on 138 kV Offsite Source

A. Plant Operating Conditions before the Event

Unit: 1	Event Date: 03/30/16	Event Time: 1545
Mode: 1	Mode Name: Power Operation	Reactor Power: 99 percent

B. DESCRIPTION OF EVENT

On March 30, 2016, at 1545 CDT, the Emergency Reserve Auxiliary Transformer (ERAT) Static VAR Compensator (SVC) [COMP] tripped when the 138 kV line cycled open and closed due to a lightning strike. Operations entered CPS procedures 4002.01, Loss of AC, and 4001.02, Automatic Isolation, and Technical Specification (TS) Limiting Condition for Operation (LCO) 3.8.1, AC Sources – Operating, Required Actions A.1 and A.2.

During the event, Division 1 Secondary Containment (SC) isolation dampers went shut due to the momentary loss of power and SC vacuum exceed 0 inch water gauge (WG). Emergency Operating Procedure (EOP)-8, Secondary Containment Control, and TS LCO 3.6.4.1, Secondary Containment, Required Action A.1 were entered as a result of this abnormal condition.

At 1547, the Standby Gas Treatment System (VG) Train A was started per CPS procedure 3319.01, Standby Gas Treatment, Section 8.2.1, due to SC isolation dampers going shut. At 1550, SC vacuum had been restored to TS limits. Procedure EOP-8 and TS LCO 3.6.4.1 Required Action A.1 were exited. The ERAT was restored at 1926 and TS LCO 3.8.1 Required Actions A.1 and A.2 were exited.

An investigation determined the cause of the event was most likely due to a lightning strike. During the time frame of the event, a powerful electrical (lightning) storm was moving through the CPS service area. During the event, the ERAT relay scheme worked as designed and ERAT circuit switcher B018 remained closed allowing the ERAT to re-energize when the 138 kV breakers re-closed.

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The event described in this LER was documented in Event Notification No. 51836 which was submitted to the NRC on March 30, 2016 at 2045 EST.

C. CAUSE OF EVENT

The apparent cause of the event was a voltage transient (most likely a lightning strike) caused a momentary loss of 138 kV substation feed to the ERAT. The ERAT relay scheme did not trip and the relay coordination worked as designed. ERAT circuit switcher B018 remained closed as designed.

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 its required safety function. Operations entered EOP-8 for SC vacuum less than minus 0.25 inch WG and entered TS LCO 3.6.4.1 Required Action A.1. SC vacuum was restored to within TS limits within the completion time requirement. The SC vacuum is kept slightly negative relative to atmospheric pressure to prevent leakage to the atmosphere. The Fuel Building ventilation (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 vacuum in the event of an accident was never jeopardized or challenged by the VF system fan trip. Engineering analysis has determined that this event is not considered a safety system functional failure.

E. CORRECTIVE ACTIONS

No failed or malfunctioning equipment occurred during this event. All equipment functioned as designed. Actions have been created to evaluate options to improve the reliability of the 138 kV source.

F. PREVIOUS SIMILAR OCCURENCES

Licensee Event Report 2015-004-00: Trip of Emergency Reserve Auxiliary Transformer Static VAR Compensator Causes Positive Secondary Containment Pressure Following Lightning Strike on 138 kV Offsite Source.

On June 25, 2015 at 0301 CDT, the Main Control Room received numerous annunciators that indicated a trip of the ERAT XFMR Static VAR Compensator (SVC)[COMP] caused by a voltage transient on the 138 kV offsite source due to thunderstorms in the area. The Division 1 Safety Bus [BU] was manually aligned from the reserve source to its normal

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source. As a result of the voltage transient, the Division 1 VF system isolation dampers closed causing a trip of VF supply and exhaust fans. SC vacuum increased to greater than 0 inch WG which exceeded the TS requirement. SC vacuum was restored within TS requirements by reopening the VF isolation dampers and restarting the VF supply and exhaust fans. The ERAT SVC was returned to service at 0457 CDT.

This occurrence is directly applicable to the conditions noted in this LER.

G. COMPONENT FAILURE DATA

There were no component failures associated with this event.