Exelon Generation

Exelon Generation Company, LLC
Braidwood Station
35100 South Route 53, Suite 84
Braceville, IL 60407-9619

www.exeloncorp.com

10 CFR 50.73

August 18, 2021
BW210054

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

Braidwood Station, Unit 1
Renewed Facility Operating License No. NPF-72
NRC Docket No. STN 50-456

Subject: Licensee Event Report 2021-002-00 – Unit Trip on Generator Load Rejection Due to Lightning Strike Within the Unit Switchyard Exceeding the Capabilities of the Switchyard Grounding System

The enclosed Licensee Event Report (LER) is being submitted in accordance with 10 CFR 50.73, "Licensee Event Report System."

There are no regulatory commitments contained in this letter. Should you have any questions concerning this submittal, please contact Mr. Kevin Lueshen, Regulatory Assurance Manager, at (815) 417-2800.

Respectfully,

Keenan, John P.

Digitally signed by Keenan, John P.
DN: cn=Keenan, John P.
Date: 2021.08.17 08:36:07 -05'00'

John Keenan
Site Vice President
Braidwood Station

Enclosure: LER 2021-002-00

cc: NRR Project Manager – Braidwood Station
Illinois Emergency Management Agency – Division of Nuclear Safety
US NRC Regional Administrator, Region III
US NRC Senior Resident Inspector (Braidwood Station)
Illinois Emergency Management Agency – Braidwood Representative

NRC FORM 366 (08-2020) | U.S. NUCLEAR REGULATORY COMMISSION | APPROVED BY OMB: NO. 3150-0104 | EXPIRES: 08/31/2023

LICENSEE EVENT REPORT (LER)

(See Page 3 for required number of digits/characters for each block)
(See NUREG-1022, R.3 for instruction and guidance for completing this form
http://www.nrc.gov/reading-rm/doc-collections/nureas/staff/sr1022/r3/)

1. Facility Name	2. Docket Number	3. Page
Braidwood Station, Unit 1	05000456	1 OF 3

4. Title
Unit Trip on Generator Load Rejection Due to Lightning Strike Within the Unit Switchyard Exceeding the Capabilities of the Switchyard Grounding System

5. Event Date			6. LER Number			7. Report Date			8. Other Facilities Involved	
Month	Day	Year	Year	Sequential Number	Revision No.	Month	Day	Year	Facility Name	Docket Number
6	21	2021	2021	- 002 -	00	08	18	2021	N/A	N/A
									Facility Name: N/A	Docket Number: N/A

9. Operating Mode	10. Power Level
Mode 1	100

11. This Report is Submitted Pursuant to the Requirements of 10 CFR §: *(Check all that apply)*

10 CFR Part 20	☐ 20.2203(a)(2)(vi)	☐ 50.36(c)(2)	☒ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(A)	10 CFR Part 73
☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.69(g)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(4)
☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ 73.71(a)(5)
☐ 20.2203(a)(2)(i)	10 CFR Part 21	☐ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(v)(D)	☐ 73.77(a)(1)(i)
☐ 20.2203(a)(2)(ii)	☐ 21.2(c)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)	☐ 73.77(a)(2)(i)
☐ 20.2203(a)(2)(iii)	10 CFR Part 50	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)	☐ 73.77(a)(2)(ii)
☐ 20.2203(a)(2)(iv)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)	
☐ 20.2203(a)(2)(v)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)	

☐ **OTHER** (Specify here, in abstract, or NRC 366A).

12. Licensee Contact for this LER

Licensee Contact	Phone Number (Include area code)
Kevin Lueshen, Regulatory Assurance Manager	(815) 417-2800

13. Complete One Line for each Component Failure Described in this Report

Cause	System	Component	Manufacturer	Reportable to IRIS		Cause	System	Component	Manufacturer	Reportable to IRIS
N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A

14. Supplemental Report Expected		15. Expected Submission Date	Month	Day	Year
☒ No	☐ Yes (If yes, complete 15. Expected Submission Date)		N/A	N/A	N/A

16. Abstract (Limit to 1560 spaces, i.e., approximately 15 single-spaced typewritten lines)

On June 21, 2021 at 0051 hours, Unit 1 experienced an automatic reactor trip due to a generator lockout relay actuation and subsequent turbine trip and reactor trip.

The cause of the event was determined to be due to a lightning strike within the unit switchyard exceeding the capabilities of the switchyard grounding system, which resulted in induced voltage on the 125 Volt DC load rejection circuit for the Unit 1 generator output breakers. Planned corrective actions are to conduct a study of the grounding system and implement appropriate approved upgrades to the station and switchyard grounding grid to reduce the impact of future lightning strikes.

This event is reportable in accordance with 10 CFR 50.73(a)(2)(iv)(A) for "Any event or condition that resulted in manual or automatic actuation of any of the systems listed in paragraph (a)(2)(iv)(B) of this section, ..." Specifically, for 1) 10 CFR 50.73(a)(2)(iv)(B)(1) for the "Reactor protection system (RPS) including: reactor scram or reactor trip," and 2) 10 CFR 50.73(a)(2)(iv)(B)(6) for the "PWR auxiliary or emergency feedwater system."

LICENSEE EVENT REPORT (LER) CONTINUATION SHEET

(See NUREG-1022, R.3 for instruction and guidance for completing this form http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/)

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Braidwood Station, Unit 1	05000456	2021	- 002	- 00

NARRATIVE

A. Plant Operating Conditions Before the Event:

Event Date: June 21, 2021

Unit: 1 MODE: 1 Reactor Power: 100 percent

Unit 1 Reactor Coolant System (RCS) [AB]: Normal operating temperature and pressure

No structures, systems or components were inoperable at the start of this event that contributed to the event.

B. Description of Event:

On June 21, 2021 at 0051 CDT Braidwood Unit 1 experienced an automatic reactor trip due to a generator lockout relay actuation and subsequent turbine trip and reactor trip.

Both trains of auxiliary feedwater [BA] started automatically following the reactor trip to maintain steam generator water levels. All systems responded as expected with the exception of a failure of the source range nuclear instruments to automatically re-energize following the reactor trip. Both source range nuclear instruments were manually energized in accordance with station procedures.

This event is reportable in accordance with 10 CFR 50.73(a)(2)(iv)(A) for "Any event or condition that resulted in manual or automatic actuation of any of the systems listed in paragraph (a)(2)(iv)(B) of this section, ..." Specifically, for 1) 10 CFR 50.73(a)(2)(iv)(B)(1) for the "Reactor protection system (RPS) including: reactor scram or reactor trip," and 2) 10 CFR 50.73(a)(2)(iv)(B)(6) for the "PWR auxiliary or emergency feedwater system." This LER is being submitted in follow-up to ENS 55320 made on June 21, 2021.

C. Cause of Event

The cause of unit trip from the generator load rejection was determined to be due to a lightning strike within the unit switchyard exceeding the capabilities of the switchyard grounding system [FC], which resulted in induced voltage on the 125 Volt DC load rejection circuit for the Unit 1 generator output breakers.

D. Safety Consequences:

There were no safety consequences impacting plant or public safety as a result of this event. The reactor trip system responded automatically due to the trip signal received. There was no loss of any function that would have prevented fulfillment of actions necessary to 1) Shutdown the reactor and maintain it in a safe shutdown condition, 2) Remove residual heat, 3) Control the release of radioactive material, or 4) Mitigate the consequences of an accident.

There was no loss of safety function for this event.

E. Corrective Actions:

Planned corrective actions are to conduct a study of the grounding system and implement appropriate approved upgrades to the station and switchyard grounding grid to reduce the impact of future lightning strikes.

LICENSEE EVENT REPORT (LER) CONTINUATION SHEET

(See NUREG-1022, R.3 for instruction and guidance for completing this form http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/)

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Braidwood Station, Unit 1	05000456	2021	- 002	- 00

NARRATIVE

F. Previous Occurrences:

No previous, similar Licensee Event Reports were identified at the Braidwood Station in the past three years.

G. Component Failure Data:

Manufacturer	Nomenclature	Model	Mfg. Part Number
N/A	N/A	N/A	N/A