



Constellation

Constellation Energy Generation, LLC (CEG)  
Byron Station  
4450 N. German Church Road  
Byron, IL 61010-9794

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September 9, 2022

10CFR50.73

LTR: BYRON 2022-0060  
File: 1D.101  
5A.108

United States Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555-0001

Byron Station, Units 1 and 2  
Renewed Facility Operating License No. NPF-37 and NPF-66  
NRC Docket No. STN 50-454

Subject: Licensee Event Report (LER) No. 454-2022-001-00 "0B Control Room Ventilation Supply Fan Failed to Start due to Erroneous Position Indication from the Closed Limit Switch for Charcoal Deluge Valve Interlock"

Enclosed is Byron Station Licensee Event Report (LER) No. 454-2022-001-00 regarding failure of the 0B Control Room Ventilation Supply fan to start due to an erroneous position indication from the closed limit switch for the charcoal deluge valve interlock. This condition is being submitted in accordance with 10 CFR 50.73, "Licensee Event Report System."

There are no regulatory commitments in this report.

Should you have any questions concerning this submittal, please contact Ms. Zoe Cox, Regulatory Assurance Manager, at (815) 406-2800.

Respectfully,

Harris Welt  
Site Vice President  
Byron Generating Station

HW/ZC/hh

Enclosure: LER 454-2022-001-00

cc: Regional Administrator – NRC Region III  
NRC Senior Resident Inspector – Byron Generating Station



**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/nuregs/staff/sr1022/r3/>)

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, Library, and Information Collections Branch (T-6 A10M), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to [infocollections.Resource@nrc.gov](mailto:infocollections.Resource@nrc.gov), and the OMB reviewer at: OMB Office of Information and Regulatory Affairs, (3150-0104), Attn: Desk all: [oir\\_submission@omb.eop.gov](mailto:oir_submission@omb.eop.gov). The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless the document requesting or requiring the collection displays a currently valid OMB control number.

<b>1. Facility Name</b> Byron Station, Unit 1	<b>2. Docket Number</b> 05000454	<b>3. Page</b> 1 OF 3
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**4. Title**  
0B Control Room Ventilation Supply Fan Failed to Start due to Erroneous Position Indication from the Closed Limit Switch for Charcoal Deluge Valve Interlock

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
07	12	2022	2022	- 001 -	00	09	09	2022	Byron Station, Unit 2	05000455
									Facility Name	Docket Number
									N/A	N/A

<b>9. Operating Mode</b> Mode 1	<b>10. Power Level</b> 100
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**11. This Report is Submitted Pursuant to the Requirements of 10 CFR §: (Check all that apply)**

<input type="checkbox"/> 10 CFR Part 20	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)
<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<b>10 CFR Part 73</b>
<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.69(g)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(4)
<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> 73.71(a)(5)
<input type="checkbox"/> 20.2203(a)(2)(i)	<b>10 CFR Part 21</b>	<input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	<input type="checkbox"/> 73.77(a)(1)(i)
<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 21.2(c)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> 73.77(a)(2)(i)
<input type="checkbox"/> 20.2203(a)(2)(iii)	<b>10 CFR Part 50</b>	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	<input type="checkbox"/> 73.77(a)(2)(ii)
<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)	
<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)	
<input type="checkbox"/> OTHER (Specify here, in abstract, or NRC 366A).				

**12. Licensee Contact for this LER**

Licensee Contact Zoe Cox, Regulatory Assurance Manager	Phone Number (Include area code) (815) 406-2800
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**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
B	VI	ZIS	N007	Y	N/A	N/A	N/A	N/A	N/A

<b>14. Supplemental Report Expected</b>	<b>15. Expected Submission Date</b>	Month	Day	Year
<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes (If yes, complete 15. Expected Submission Date)	NA	NA	NA

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

On July 12, 2022, the 0B Control Room Ventilation (VC)[VI] supply fan (0VC01CB) failed to start when commanded due to an erroneous position indication from the closed limit switch (0ZS-FP432B-A) for the 0B VC recirculation charcoal deluge valve (0FP432B). The deluge valve was closed but the limit switch operating lever had rolled under the limit switch finger, causing the operating lever to be in the same position as if the deluge valve were in the "intermediate" or "open" position. This resulted in the 0B train of VC not being operable for 48 days. Once identified, the actuator arm and limit switch were adjusted to properly make up the closed limit and the fan was started, restoring the 0B train of VC to operable.

This event is reportable in accordance with 10 CFR 50.73(a)(2)(i)(B) for any operation or condition which was prohibited by the plant's Technical Specifications.



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

(See NUREG-1022, R.3 for instruction and guidance for completing this form  
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1. FACILITY NAME  Byron Station, Unit 1	2. DOCKET NUMBER  05000454	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
		2022	- 001	- 00

**NARRATIVE**

**A. Plant Operating Conditions Before the Event:**

Event Date: July 12, 2022  
 Unit 1 – Mode 1 – Power Operations, Reactor Power 100 percent  
 Unit 2 – Mode 1 – Power Operations, Reactor Power 100 percent  
 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 July 12, 2022, at 03:24 CDT, the 0B Control Room (VC)[VI] supply fan (0VC01CB) failed to start when commanded due to an erroneous position indication from the closed limit switch (0ZS-FP432B-A) for the 0B VC recirculation charcoal deluge valve (0FP432B). The deluge valve was in the closed position; however, the limit switch operating lever had rolled under the limit switch finger, resulting in the operating lever being in the same position as if the deluge valve was in the intermediate or open position. In accordance with the 0B VC Supply Fan control logic drawing (6E-0-4030VC02), if the 0FP432B valve limit switch is in the intermediate or open position (i.e., not closed), the supply fan shunt trip coil is energized, preventing the supply fan breaker from remaining closed after a start command, causing the fan to trip immediately.

A review was completed to determine the last time the 0FP432B valve was manipulated. On May 23, 2022, the 0B VC System makeup filter and recirculation charcoal adsorber were placed in service for 0B VC chiller performance verification testing. This was the last documented run of 0VC01CB supply fan prior to July 12, 2022. On May 25, 2022, 0FP432B, recirculation charcoal deluge valve was manually cycled to support performance of a Fire Protection (FP) surveillance. On July 12, 2022, at 03:24 CDT, the attempted start of the 0VC01CB supply fan resulted in it immediately tripping. The 0A VC train was restarted 1 hour and 13 minutes later in accordance with procedural guidance. On July 12, 2022, at 14:05 CDT, the 0B VC train was started after the actuator arm and limit switch were adjusted to properly make up the closed limit interlock. On July 12, 2022, at 19:48, after completion of post-maintenance testing, Limiting Condition for Operation (LCO) Condition A for Technical Specifications 3.7.10, "Control Room Ventilation (VC) Filtration System" and LCO Condition A for TS 3.7.11, "Control Room Ventilation (VC) Temperature Control System" were exited, and operability of the 0B train of VC was restored.

**C. Cause of Event**

The cause of the 0B VC supply fan to not start was the limit switch operating lever had rolled under the limit switch finger which made the 0FP432B valve appear to be in the intermediate or open position causing the supply fan shunt trip coil to remain energized, thereby preventing the fan breaker from remaining closed after the start command. There were inadequate margins in the length of the limit switch operating levers to be made up with the limit switch finger.

**D. Safety Consequences:**

This condition had no actual safety consequences impacting plant or public safety. This event is not considered an event or condition that could have prevented fulfillment of a safety function.

The VC system has two full capacity, redundant equipment trains that perform the same function. The VC HVAC system is designed to ensure control of environmental conditions within specified maximum and minimum



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

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		YEAR	SEQUENTIAL NUMBER	REV NO.
Byron Station, Unit 1	05000454	2022	- 001	- 00

**NARRATIVE**

limits which are conducive to personnel habitability and prolonged service life of Safety Category I components under all normal and abnormal station operating conditions. The 0A Train of VC remained operable during this event (i.e., between May 23, 2022 and July 12, 2022).

**E. Corrective Actions:**

The immediate corrective action performed was to adjust the actuator arm and limit switch to properly make up the closed limit and the 0B VC supply fan was started.

A work order to replace the operating levers on the 0B VC recirculation charcoal deluge valves using the same part number found on the 0A VC train, which are longer in length than the lever currently installed on the 0B VC train is the long-term corrective action for this event.

**F. Previous Occurrences:**

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

**G. Component Failure Data:**

<u>Manufacturer</u>	<u>Nomenclature</u>	<u>Model</u>	<u>Mfg. Part Number</u>
NAMCO	NAMCO EL Series Operating Levers	Series EA170	EL010-53338