



**Exelon Generation**®

**Byron Generating Station**

4450 North German Church Rd  
Byron, IL 61010-9794

www.exeloncorp.com

June 20, 2019

LTR: BYRON 2019-0060  
File: 1.10.0101 (1D.101)  
2.07.0100 (5A.108)

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

Byron Station, Unit 2  
Renewed Facility Operating License No. NPF-66  
NRC Docket No. STN 50-455

Subject: Licensee Event Report (LER) No. 455-2019-001-00 "Manual Actuation of Auxiliary Feedwater Due to High Inboard Motor Bearing Temperature on Startup Feedwater Pump"

Enclosed is Byron Station Licensee Event Report (LER) No. 455-2019-001-00 regarding manual actuation of auxiliary feedwater due to high inboard motor bearing temperature on startup feedwater pump on Byron Unit 2. 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 Mr. Jon Cunzeman, Regulatory Assurance Manager, at (815) 406-2800.

Respectfully,

A handwritten signature in black ink, appearing to read "Mark E. Kanavos".

Mark E. Kanavos  
Site Vice President  
Byron Generating Station

MEK/ZC/rm

Enclosure: LER 455-2019-001-00

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



**LICENSEE EVENT REPORT (LER)**

(See Page 2 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 Information Services Branch (T-2 F43), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to [Infocollect.Resource@nrc.gov](mailto: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.

|   |                                     |                          |
|---|-------------------------------------|--------------------------|
| <b>1. Facility Name</b><br>Byron Station – Unit 2 | <b>2. Docket Number</b><br>05000455 | <b>3. Page</b><br>1 OF 3 |
|---|-------------------------------------|--------------------------|

**4. Title**  
Manual Actuation of Auxiliary Feedwater Due to High Inboard Motor Bearing Temperature on Startup Feedwater Pump

| 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 |
| 04            | 22  | 19   | 2019          | - 001             | - 00    | 06             | 20  | 2019 | N/A                          | N/A           |
|               |     |      |               |                   |         |                |     |      | Facility Name                | Docket Number |
|               |     |      |               |                   |         |                |     |      | N/A                          | N/A           |

|                          |  |   |  |   |
|--------------------------|--|---|--|---|
| <b>9. Operating Mode</b> | <b>11. This Report is Submitted Pursuant to the Requirements of 10 CFR §: (Check all that apply)</b> |   |  |   |
| 3                        | <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 checked="" type="checkbox"/> 50.73(a)(2)(iv)(A)                         | <input type="checkbox"/> 50.73(a)(2)(x)       |
| <b>10. Power Level</b>   | <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)          |
| 000                      | <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 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**

|  |   |
|--|---|
| <b>Licensee Contact</b><br>Jonathan Cunzeman - Manager, Byron Regulatory Assurance | <b>Telephone Number (Include Area Code)</b><br>(815) 406-2800 |
|--|---|

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

| Cause | System | Component | Manufacturer | Reportable to ICES | Cause | System | Component | Manufacturer | Reportable to ICES |
|-------|--------|-----------|--------------|--------------------|-------|--------|-----------|--------------|--------------------|
| X     | SJ     | P         | P025         | 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 type="checkbox"/> Yes (If yes, complete 15. Expected Submission Date) <input checked="" type="checkbox"/> No |                                     | N/A   | N/A | N/A  |

**Abstract** (Limit to 1400 spaces, i.e., approximately 14 single-spaced typewritten lines)

On April 22, 2019 at 0850 hours, the non-safety related Start Up Feedwater (SUFW) pump [SJ] was started in support of plant heat up per Byron procedure 2BGP 100-1, "Plant Heatup". Engineering was performing monitoring and identified that the inboard motor bearing temperature of the SUFW pump was elevated and continuing to rise. Operations was notified and continued to monitor the bearing temperature in parallel with Engineering monitoring. At 1300 hours, the bearing reached 208 degrees F and the SUFW pump was secured to prevent damage to the motor. During this time, Operations was not able to begin the startup process for the non-safety related Motor Driven Feedwater (MDFW) pump because it was not filled and vented. Therefore, upon securing the SUFW pump, Operations entered Byron procedure 2BOA SEC-1, "Secondary Pump Trip" and performed the appropriate attachment for loss of Feedwater flow in Mode 3. The attachment required Operations to start an Auxiliary Feedwater (AF) [BA] pump. The motor driven AF pump [AFW Train A] was manually started at 1323 hours on April 22, 2019 and supplied water to the Steam Generators as designed. This resulted in ENS 54020 for manual actuation of the AF system. Filling and venting of the MDFW pump were completed and the pump was started at 1626 hours, allowing the motor driven AF pump to be shut down at 1632 hours on April 22, 2019.



**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/>)

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| 1. FACILITY NAME       | 2. DOCKET NUMBER | 3. LER NUMBER |                   |         |
|------------------------|------------------|---------------|-------------------|---------|
|                        |                  | YEAR          | SEQUENTIAL NUMBER | REV NO. |
| Byron Station – Unit 2 | 05000455         | 2019          | - 001             | - 00    |

**NARRATIVE**

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

Unit: 2      Mode: 3      Reactor Power: 0%

U2 Reactor Coolant System [AB]: Temperature: 556 degrees F, Pressure: 2235 psig

The Motor Driven Feedwater pump [SJ] was not available as an alternate source of feedwater at the time of the event as it was not filled and vented. Work on the motor driven feedwater pump was not complete. The feedwater system was filled and vented, with the exception of the motor driven feedwater pump, which was isolated from the system.

**B. Description of Event:**

On April 22, 2019 at 0850 hours, the Start Up Feedwater (SUFW) pump [SJ] was started in support of plant heat up per Byron procedure 2BGP 100-1, "Plant Heatup". During plant startup, Engineering implements increased system monitoring. Specific monitoring points are identified prior to the outage with action level criteria identified to assist Engineering and Operations in making operational recommendations and decisions. While Engineering was performing monitoring, they identified early that the inboard motor bearing temperature of the SUFW pump was elevated and continuing to rise. Engineering notified the Outage Control Center (OCC), Operations and Component Maintenance Organization (CMO) and continued to monitor in parallel with Operations. CMO was dispatched to the field to collect vibrations and thermography data on the SUFW pump. At 1300 hours, the bearing reached 208 degrees F and the SUFW pump was secured to prevent damage to the motor. During this time, operations was not able to begin the startup process for the Motor Driven Feedwater (MDFW) pump because it was not filled and vented. Therefore, upon securing the SUFW pump, Operations entered Byron procedure 2BOA SEC-1, "Secondary Pump Trip" and performed the appropriate attachment for loss of Feedwater flow in Mode 3. The attachment required Operations to start an Auxiliary Feedwater (AF) [BA] pump. The motor driven AF pump [AFW Train A] was manually started at 1323 hours on April 22, 2019 and supplied water to the Steam Generators as designed. This resulted in ENS 54020. Filling and venting of the MDFW pump were completed and the pump was started at 1626 hours, allowing the motor driven AF pump to be shut down at 1632 hours on April 22, 2019.

**C. Cause of the Event:**

During plant start-up from Byron Spring 2019 refueling outage B2R21, Unit 2 experienced a loss of feedwater when the SUFW pump had to be shut down due to high inboard bearing temperatures and the MDFW pump was unavailable to start. This necessitated the manual start of the motor driven Auxiliary Feedwater pump to maintain Steam Generator levels. Starting the AF pump is reportable under 10 CFR 50.72 (b)(3)(iv)(A), Specified System Actuation.

**D. Safety Consequences:**

This event had no actual safety consequences impacting the plant or the public. The AF pump was started and supplied water to the Steam Generators to maintain level. There was no loss of safety function due to this event as the Start Up Feedwater pump and Motor Driven Feedwater pump are non-safety related equipment and the safety-related AF pump operated as designed.



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| Byron Station – Unit 2 | 05000455         | 2019          | - 001             | - 00    |

**NARRATIVE**

**E. Corrective Actions:**

Revise Operations procedures to include requirement or prerequisite for having more than one feedwater pump available prior to starting any feedwater pump. This action will address Unit 1 as well.

**F. Previous Occurrences:**

There have been no previous occurrences of this event for Byron Station.

**G. Component Failure Data:**

Manufacturer -  
Pacific Pump Division Dresser Industries

Model -  
HVC 10 X 19 XS  
Single Stage

Nomenclature –  
Start Up Feedwater Pump