



Byron Generating Station

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March 24, 2014

LTR: BYRON 2014-0031
File: 1.10.0101

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

Byron Station, Units 1 and 2
Facility Operating License Nos. NPF-37 and NPF-66
NRC Docket Nos. STN 50-454 and STN 50-455

Subject: Licensee Event Report (LER) 454-2014-001-00, "0A Essential Service Water (SX) Makeup Pump Unexpected Auto-Start during 0B SX Pump Monthly Surveillance"

Enclosed is an LER concerning the Byron Station unexpected auto-start of the 0A SX Makeup Pump that occurred on January 23, 2014. This condition is reportable to the NRC in accordance with 10 CFR 50.73(a)(2)(iv)(A) – Any event or condition that resulted in manual or automatic actuation of any of the systems listed in paragraph 10 CFR 50.73(a)(2)(iv)(B).

Should you have any questions concerning this submittal, please contact Mr. Steven Gackstetter, Regulatory Assurance Manager, at (815) 406-2800.

Respectfully,

A handwritten signature in black ink, appearing to read "F. Kearney", is written over the typed name and title.

Faber A. Kearney
Site Vice President
Byron Station

FAK/GC/sg

Enclosure: LER 454-2014-001-00

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

**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 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.

1. FACILITY NAME

Byron Station, Unit 1

2. DOCKET NUMBER

05000454

3. PAGE

1 OF 3

4. TITLE

0A Essential Service Water (SX) Makeup Pump Unexpected Auto Start during 0B SX Pump Monthly Surveillance

| 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 |
| 01 | 23 | 2014 | 2014 | 001 | 00 | 03 | 24 | 2014 | Byron Station, Unit 2 | 05000455 |
| | | | | | | | | | FACILITY NAME | DOCKET NUMBER |
| | | | | | | | | | N/A | N/A |

| 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)(i)(C) | <input type="checkbox"/> 50.73(a)(2)(vii) |
| | <input type="checkbox"/> 20.2201(d) | <input type="checkbox"/> 20.2203(a)(3)(ii) | <input type="checkbox"/> 50.73(a)(2)(ii)(A) | <input type="checkbox"/> 50.73(a)(2)(viii)(A) |
| | <input type="checkbox"/> 20.2203(a)(1) | <input type="checkbox"/> 20.2203(a)(4) | <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)(i) | <input type="checkbox"/> 50.36(c)(1)(i)(A) | <input type="checkbox"/> 50.73(a)(2)(iii) | <input type="checkbox"/> 50.73(a)(2)(ix)(A) |
| 100 | <input type="checkbox"/> 20.2203(a)(2)(ii) | <input type="checkbox"/> 50.36(c)(1)(ii)(A) | <input checked="" type="checkbox"/> 50.73(a)(2)(iv)(A) | <input type="checkbox"/> 50.73(a)(2)(x) |
| | <input type="checkbox"/> 20.2203(a)(2)(iii) | <input type="checkbox"/> 50.36(c)(2) | <input type="checkbox"/> 50.73(a)(2)(v)(A) | <input type="checkbox"/> 73.71(a)(4) |
| | <input type="checkbox"/> 20.2203(a)(2)(iv) | <input type="checkbox"/> 50.46(a)(3)(ii) | <input type="checkbox"/> 50.73(a)(2)(v)(B) | <input type="checkbox"/> 73.71(a)(5) |
| | <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)(C) | <input type="checkbox"/> OTHER |
| | <input type="checkbox"/> 20.2203(a)(2)(vi) | <input type="checkbox"/> 50.73(a)(2)(i)(B) | <input type="checkbox"/> 50.73(a)(2)(v)(D) | Specify in Abstract below or in NRC Form 366A |

12. LICENSEE CONTACT FOR THIS LER**LICENSEE CONTACT**

Steven A Gackstetter – Manager, Byron Regulatory Assurance

TELEPHONE NUMBER (Include Area Code)

(815) 406-2800

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 |
|-------|--------|-----------|---------------|--------------------|-------|--------|-----------|---------------|--------------------|
| D | N/A | N/A | N/A | Yes | N/A | N/A | N/A | N/A | N/A |

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 January 23, 2014, Byron Unit 1 and Unit 2 were in Mode 1 with reactor power at 100 percent. At 0539, the 0A Essential Service Water (SX) Makeup Pump auto-started while lowering basin level for the scheduled 0B SX Makeup Pump monthly run surveillance. The 0A SX Makeup Pump was running for approximately 21 minutes until it could be secured per the operating procedure. At the time of the 0A SX Makeup Pump auto-start, SX tower basin levels were being lowered for a scheduled 0B SX Makeup Pump auto-start per 0BOSR 7.9.6-2, "Essential Service Water Makeup Pump 0B Monthly Operability Surveillance".

Since the auto-start of the opposite train SX makeup pump was not part of a preplanned sequence during the surveillance, this is a reportable condition in accordance with 10 CFR 50.73(a)(2)(iv)(A) as an event or condition that resulted in manual or automatic actuation of an Emergency Service Water System that does not normally run and that serves as an ultimate heat sink, which is listed in paragraph 10 CFR 50.73(a)(2)(iv)(B).

The cause of the event was that the operating procedure directs the controller to be set at a level that leaves little margin to the SX Makeup Pump automatic start level switch setpoint, especially when adverse environmental conditions such as high winds and wave action exist.

**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 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.

| 1. FACILITY NAME | 2. DOCKET | 6. LER NUMBER | | | 3. PAGE |
|-----------------------|-----------|---------------|----------------------|------------|---------|
| | | YEAR | SEQUENTIAL NUMBER | REV NO. | |
| Byron Station, Unit 1 | 05000454 | 2014 | - 001 | - 00 | 2 OF 3 |

NARRATIVE**A. Plant Condition Prior to Event**

Event Date/Time: January 23, 2014 / 0539 hours CST

Unit 1 - Mode 1 - Power Operations, Reactor Power 100 percent

Unit 2 - Mode 1 - Power Operations, Reactor Power 100 percent

Reactor Coolant System [AB]: Normal operating temperature and pressure.

B. Description of Event

On January 23, 2014, Byron Unit 1 and Unit 2 were in Mode 1 with reactor power at 100 percent. Operators were restoring the 0B SX Makeup Pump to an available on line status following a scheduled work window. In preparation to execute an auto-start of the 0B SX Makeup Pump, the shift began lowering SX tower basin level per Byron operating procedure BOP SX-12, "*Makeup to an Essential Service Water Mechanical Draft Cooling Tower Basin.*" During the lowering of the SX basin level, an auto-start of the 0A SX Makeup Pump occurred due to a sensed low level in the 0A SX tower basin.

The minimum allowed Technical Specification (TS) level for SX Cooling Tower basin water level is 60 percent per Byron TS LCO 3.7.9, "*Ultimate Heat Sink (UHS).*" The auto-start level setpoint for each pump is 62 percent. The Byron SX Cooling Tower contains separate basins for the 0A and 0B SX trains which are hydraulically connected at 64 percent level and above and are physically separated below 64 percent level.

The SX basin level was being lowered on both basins, as they are cross-tied to the 64 percent level. Basin level was being lowered in automatic mode on the Manual/Auto (M/A) station for both 0A and 0B basin level controllers by reducing the demand signal on the M/A station. This practice causes the makeup to the basins to remain closed until the setpoint on the M/A station is reached. The demand setpoint on the M/A station was set to 71 percent in accordance with BOP SX-12, which is well above the expected auto-start setpoint of 62 percent.

As the controller was responding in automatic mode to the setting at 71 percent basin level, it overshoot and reached 68 percent, at which time the 0A SX Makeup Pump auto started. Additionally, there were adverse environmental conditions outside including high winds that were causing wave action in both basins, which likely contributed to the auto-start of the 0A SX Makeup Pump. This level is approximately 6 percent above the designed auto start level of 62 percent.

C. Cause of Event

The cause of the event was that the operating procedure directs the controller to be set at a level that leaves little margin to the SX Makeup Pump automatic start level switch setpoint, especially when adverse environmental conditions such as high winds and wave action exist.

D. Safety Significance

The 0A SX Makeup Pump was Operable per Byron TS 3.7.9, "*Ultimate Heat Sink (UHS).*" The pump was demonstrated to start on low basin level and was within the frequency requirements of the TS Surveillance Requirement. In this event the pump started early, which is conservative relative to the design setpoint. Therefore, the safety significance of this issue is considered low.

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

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NARRATIVE

E. Corrective Actions

Corrective actions include revising the operating procedures for SX tower basin level manipulations to set the controller at a more conservative target level relative to the SX Makeup Pump trip setpoint. Additionally, notes and cautions will be inserted to better alert the operator of potential SX Makeup pump auto-starts during SX tower basin level manipulations.

F. Previous Occurrences

There have been no previous occurrences of this nature in the previous three years.