



Byron Generating Station

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August 27, 2015

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

Byron Station, Unit 1  
Facility Operating License No. NPF-37  
NRC Docket No. STN 50-454

Subject: Licensee Event Report (LER) Supplement 454-2015-003-01, "Byron Unit 1, One Train of the Diesel Generator System Inoperable Longer Than Allowed by Technical Specifications Due to Loss of Diesel Fuel Oil System Volume"

Enclosed is Byron Station Licensee Event Report (LER) Supplement No. 454-2015-003-01 regarding occurrence in the prior three years when the Unit 1, B-train Diesel Generator was determined to have been inoperable for a period not allowed by technical specifications due to loss of Diesel Fuel Oil System Inventory. This condition is reportable in accordance with 10 CFR 50.73(a)(2)(i)(B) for any event or condition that is prohibited by Technical Specifications. This supplement is provided to correct the event date based on subsequent investigation and to reflect that the condition is not reportable under 10 CFR 50.73(a)(2)(v)(D) for an event or condition that could have prevented the fulfillment of a safety function of structures or systems that are needed to mitigate the consequences of an accident.

There are no regulatory commitments in this report.

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

Respectfully,

A handwritten signature in black ink, appearing to read "F. Kearney", written over a horizontal line.

Faber A. Kearney  
Site Vice President  
Byron Generating Station

FAK/GC/sg

Enclosure: LER 454-2015-003-01

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)

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.

<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**  
One Train of the Diesel Generator System Inoperable Longer than Allowed by Technical Specifications Due to Loss of Diesel Fuel Oil System Volume

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
10	08	2014	2015	003	01	08	27	2015	N/A	N/A
									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>			
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 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 checked="" 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 Douglas Spitzer – Manager, Byron Regulatory Assurance	TELEPHONE 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	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
X	DC	V	Anchor Darling	Y	N/A	N/A	N/A	N/A	N/A

<b>14. SUPPLEMENTAL REPORT EXPECTED</b> <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	<b>15. EXPECTED SUBMISSION DATE</b>	MONTH	DAY	YEAR
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**ABSTRACT** (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On November 20, 2014 at 1248 hours, the Byron Station Main Control Room (MCR) received an alarm identifying that fuel oil level was low on one of two Diesel Oil Storage Tanks (DOSTs) associated with the Unit 1, B-train (1B) Emergency Diesel Generator (DG). At 1328 hours, the MCR received an alarm identifying level was also low in the second DOST associated with the 1B DG. Operators determined that the low level condition was due to leakage to the Unit 1, A-train (1A) fuel oil storage system through one of two 1A DOST inlet valves. The Corrective Action Program investigation identified that leakage initially occurred during the 1B DG monthly surveillance conducted on October 22, 2014.

Subsequent analysis concluded that the loss of inventory from the 1B DOSTs to the 1A DOSTs would result in the 1B DG not meeting its design mission time without operator intervention.

This event is reportable in accordance with 10 CFR 50.73(a)(2)(i)(B) for an operation or condition prohibited by Technical Specifications.

The cause of the event was a degraded DOST inlet valve that allowed fuel to transfer from the 1B DOSTs to the 1A DOSTs.



**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	2015	- 003	- 01	2 OF 3

**NARRATIVE**

**A. Plant Condition Prior to Event**

Event Date/Time: October 8, 2014 / 2130 hours CST  
Unit 1 - Mode 1 - Power 100 percent

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

**B. Description of Event**

On November 20, 2014 at 1248 hours, the Byron Station Main Control Room (MCR) received an alarm identifying that fuel oil level was low on one of two Diesel Oil Storage Tanks (DOSTs) associated with the Unit 1, B-train (1B) Emergency Diesel Generator (DG). At 1328 hours, the MCR received an alarm identifying level was also low in the second DOST associated with the 1B DG. Operators determined that the low level condition was due to leakage to the Unit 1, A-train (1A) fuel oil storage system through one of two 1A DOST inlet valves. This meant that diesel fuel oil was being transferred from the 1B DOSTs to the 1A DOSTs. Operators identified leak-by through the normally closed 1A DG DOST inlet valve (1DO001C). The valve was immediately cycled in order to re-seat the valve. The valve was verified to be closed and the overflow was stopped.

On December 22, 2014 at 1351 hours, the same overflow condition occurred for a second time at the same inlet valve. This condition prompted Engineering to determine if the 1B DOSTs would be able to supply enough fuel to the 1B DG for the required design basis mission time of seven days. The analysis concluded that the loss of volume from the 1B DOSTs to the 1A DOSTs would result in the 1B DG not meeting its design mission time without Operator intervention.

The Corrective Action Program investigation identified that leakage initially occurred when an adjacent manual isolation valve was verified opened on October 8, 2014 to complete a FLEX modification, after which the 1A DG DOST inlet valve was left as a single isolation point.

Two periods of time were identified during which the 1B DG was determined to be previously inoperable. They occurred as follows: October 8, 2014 through November 20, 2014 (32 days), and December 10, 2014 through December 22, 2014 (12 days). The 1A DG was operable and available at all times.

Byron TS 3.8.3, "Diesel Fuel Oil," Condition A requires each DG have a storage volume of at least 44,000 gallons of fuel. The Byron TS Bases B 3.8.3 states that the stored diesel fuel oil is required to have sufficient supply for seven days of post-accident load operation. Although the station was still in compliance with TS 3.8.3, Condition A (i.e., diesel fuel oil volume never dropped below 44,000 gallons) when it was determined the 1B DG could not meet its required mission time, the DG would have been considered inoperable in accordance with TS 3.8.3, Condition D, "One or more DGs with diesel fuel oil not within limits for reasons other than Condition A, B, or C." Condition D requires the associated DG to be declared inoperable immediately. Byron TS 3.8.1, AC Sources – Operating, Condition B "One required DG inoperable," provides for an allowed completion time of 14 days to restore the respective DG. The 14 day allowed outage time for TS 3.8.1, Condition B was exceeded during the 32 day period that the 1B DG was inoperable. Additionally, Byron TS 3.8.1 contains Required Actions to be performed within 1 hour and within 24 hours that were not performed during either the 32 day period or the 12 day period. This condition is reportable in accordance with 10 CFR 50.73(a)(2)(i)(B) for an operation or condition prohibited by Technical Specifications.

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

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Byron Station, Unit 1	05000454	YEAR	SEQUENTIAL NUMBER	REV NO.	3 OF 3
		2015	- 003	- 01	

**NARRATIVE**

Byron Operations subsequently performed a review of opposite train equipment status during the time periods identified to determine whether a Loss of Safety Function occurred. This review identified that the 1A DG was operable and available at all times; therefore, there was no Loss of Safety Function during these periods.

**C. Cause of Event**

The cause of the event was leak-by from the 1DO001C inlet valve that allowed fuel to transfer from the B-train tanks to the A-train tanks

The cause for the DOST inlet valve (1DO001C) leaking is under investigation, and the valve has not been repaired or replaced. This condition is acceptable until the inlet valve is replaced, as the mitigating action to close inline manual valve, 1DO055B, has stopped all loss of fuel oil inventory. Leaking inlet valve 1DO001C will be repaired under Byron Work Order 01796243.

This event has been thoroughly reviewed under an Equipment Apparent Cause Evaluation in the Byron Corrective Action Program. (Reference Byron Issue Report 2506852).

**D. Safety Significance**

This event is not considered risk significant. The results of the PRA risk review of this event indicate that the 1B DG was available based on the large volume of fuel oil still available, even though it would have been inoperable in accordance with TS 3.8.3, Condition D. The PRA risk review also indicates that the short period that the CS pumps were declared inoperable is not risk significant as modelled in the Byron PRA. The 1A DG was operable and available at all times.

**E. Corrective Actions**

Apparent Cause - Leaking inlet valve 1DO001C will be repaired under Byron Work Order 01796243.

**F. Previous Occurrences**

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