



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

10 CFR 50.73

June 14, 2018  
BW180061

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 2018-003-00 – Indications on Top Head to Upper Center Disc Weld of Reactor Head Identified due to New Inspection Standards

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. Francis Jordan, Regulatory Assurance Manager, at (815) 417-2800.

Respectfully,

A handwritten signature in black ink, appearing to read "Marri Marchionda-Palmer".

Marri Marchionda-Palmer  
Site Vice President  
Braidwood Station

Enclosure: LER 2018-003-00

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



**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> <b>Braidwood Station, Unit 1</b>	<b>2. Docket Number</b> <b>05000456</b>	<b>3. Page</b> <b>1 OF 3</b>
---	--	---------------------------------

**4. Title**  
Indications on Top Head to Upper Center Disc Weld of Reactor Head Identified due to New Inspection Standards

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	20	2018	2018	- 003 -	00	06	14	2018	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>			
6	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input checked="" 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 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> Francis Jordan	<b>Telephone Number (Include Area Code)</b> 815-417-2800
---	---

**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
B	AB	1718E72	W120	Yes	N/A	N/A	N/A	N/A	N/A

<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
	N/A	N/A	N/A

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

On Friday, April 20, 2018 at 1730 hours, a scheduled ultrasonic test (UT) was performed on the top head to upper center disc weld of the Unit 1 reactor head. The UT identified nineteen indications, nine of which exceeded ASME Section XI, 2001 Edition, 2003 Addenda, Paragraph IWB-3510 acceptance criteria.

The cause of this event was the application of new inspection standards, required by 10 CFR 50.55a(b)(xv), as provided in ASME Section XI, Appendix VIII, which required the use of new procedures, personnel qualifications and equipment during the spring 2018 refueling outage reactor vessel inspection. This resulted in the identification of subsurface flaws not previously identified using techniques applicable to prior standards.

An evaluation concluded the nine indications met the criteria of ASME Section XI IWB-3600 and the existing indications were deemed acceptable for two additional operating cycles. A planned corrective action is to perform an evaluation to extend acceptance of the nine indications beyond the next two operating cycles.

This event is reportable in accordance with 10 CFR 50.73(a)(2)(ii)(A), "any event or condition that results in the condition of the nuclear power plant, including its principal safety barriers, being seriously degraded."



**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/>)

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 [Infocollects.Resource@nrc.gov](mailto: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  <b>Braidwood</b>	2. DOCKET NUMBER  <b>05000456</b>	3. LER NUMBER		
		YEAR  2018	SEQUENTIAL NUMBER  - 003	REV NO.  - 00

**NARRATIVE**

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

Event Date: April 20, 2018

Unit: 1      Mode: 6      Reactor Power: 000 percent

Unit 1 Reactor Coolant System [AB]:      Shutdown for refueling outage

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

**Description of Event:**

On Friday, April 20, 2018 at 1730 hours, a scheduled ultrasonic test (UT) was performed on the top head to upper center disc weld of the Unit 1 reactor head. The UT identified nineteen indications, nine of which exceeded ASME Section XI, 2001 Edition, 2003 Addenda, Paragraph IWB-3510 acceptance criteria. An engineering evaluation of the nine indications that failed to meet ASME Section XI, 2001 Edition, 2003 Addenda, Paragraph IWB-3510 acceptance criteria concluded that the nine indications met the criteria of ASME Section XI IWB-3600, and the existing indications were deemed acceptable for two additional operating cycles, with a more detailed analysis necessary for operation beyond two operating cycles.

This event is reportable in accordance with 10 CFR 50.73(a)(2)(ii)(A), "any event or condition that results in the condition of the nuclear power plant, including its principal safety barriers, being seriously degraded" since the nine indications did not meet the applicable acceptance criterion referenced in ASME Section XI, 2001 Edition, 2003 Addenda, Paragraph IWB-3510. This LER is being submitted in follow-up to ENS 53354 made on April 20, 2018.

**B. Cause of Event**

The application of new inspection standards, required by 10 CFR 50.55a(b)(xv), as provided in ASME Section XI, Appendix VIII, required the use of new procedures, personnel qualifications and equipment during the spring 2018 refueling outage reactor vessel inspection. This resulted in the identification of subsurface flaws not previously identified using techniques applicable to prior standards.

Based on the detailed information on indication location and sizing, all nineteen indications were classified as subsurface (i.e., not surface connected or surface breaking). This means the indications were not exposed to primary water or external contaminants, the principle causes contributing to weld corrosion or cracking. A review of plant operating history ruled out unacceptable weld stress caused by thermal or pressure transients so the indications were not the result of excessive stresses. Based on the evidence provided, it was determined the nineteen indications were created during the vessel welding and are not new defects caused by chemical or physical initiators.

**D. Safety Consequences:**

This condition had no actual safety consequences impacting plant or public safety. An engineering evaluation of the nine indications that failed to meet ASME Section XI, 2001 Edition, 2003 Addenda, Paragraph IWB-3510 acceptance criteria concluded that the nine indications met the criteria of ASME Section XI IWB-3600 and the existing indications were deemed acceptable.



**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/>)

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 [Infocollects.Resource@nrc.gov](mailto: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 NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Braidwood	05000456	2018	- 003	- 00

**NARRATIVE**

The ASME Code acceptance criteria include margins for normal, upset, test, emergency and faulted conditions; therefore, since the documented indications met all ASME Section XI IWB-3600 criteria, there would be no different safety consequences of the indications if it occurred during a design basis event.

As all identified indications met all ASME Code Section XI IWB-3600 criteria, there was no loss of safety function.

**E. Corrective Actions:**

Completed Corrective Action: An evaluation concluded the nine indications met the criteria of ASME Section XI IWB-3600, and the existing indications were deemed acceptable for two additional operating cycles.

Planned Corrective Action: Perform an evaluation to extend acceptance of the nine indications beyond the next two operating cycles.

**F. Previous Occurrences:**

There have been no previous Licensee Event Reports at Braidwood on this issue.

**G. Component Failure Data:**

<u>Manufacturer</u>	<u>Nomenclature</u>	<u>Model</u>	<u>Mfg. Part Number</u>
Westinghouse	Reactor Vessel Integrated Head Package Termination	1718E72	N/A