



# Exelon Generation<sup>®</sup>

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

September 5, 2012  
BW120082

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555-0001

Braidwood Station, Units 1 and 2  
Facility Operating License Nos. NPF-72 and NPF-77  
NRC Docket Nos. STN 50-456 and STN 50-457

Subject: Licensee Event Report 2012-004-00 – Notice of Enforcement Discretion Received for Ultimate Heat Sink Temperature Exceeding Technical Specifications Requirements Due to Prolonged Hot Weather

The enclosed voluntary Licensee Event Report (LER) is being submitted.

There are no regulatory commitments contained in this letter. Should you have any questions concerning this submittal, please contact Mr. Chris VanDenburgh, Regulatory Assurance Manager, at (815) 417-2800.

Respectfully,

Daniel J. Enright  
Site Vice President  
Braidwood Station

Enclosure: LER 2012-004-00

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 reverse 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 Section (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> Braidwood Station, Unit 1	<b>2. DOCKET NUMBER</b> 05000456	<b>3. PAGE</b> 1 of 4
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**4. TITLE**  
Notice of Enforcement Discretion Received for Ultimate Heat Sink Temperature Exceeding Technical Specifications Requirements Due to Prolonged Hot Weather

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
07	07	2012	2012	004	00	09	05	2012	Braidwood Station, Unit 2	05000457
									FACILITY NAME	DOCKET NUMBER
									N/A	N/A

<b>9. OPERATING MODE</b>  1	<b>11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §:</b> (Check all that apply)									
	<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)						
<b>10. POWER LEVEL</b>  099	<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)						
	<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 checked="" 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**

FACILITY NAME	TELEPHONE NUMBER (Include Area Code)
Chris VanDenburgh, Regulatory Assurance Manager	(815) 417-2800

**13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT**

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
N/A	N/A	N/A	N/A	N/A	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 15 single-spaced typewritten lines)

From July 4 through July 6, 2012, hot weather and drought conditions affected the northern Illinois area and resulted in elevated water temperatures in Braidwood Station's ultimate heat sink. At 1556 on July 7, 2012, the average discharge temperature of the running essential service water pumps exceeded 100 degrees F, and Technical Specification (TS) 3.7.9, "Ultimate Heat Sink (UHS)," Condition A was entered. Condition A requires that with the UHS inoperable, Units 1 and 2 be placed in Mode 3 in 6 hours and Mode 5 in 36 hours.

Enforcement Discretion was requested to extend the Completion Time of Required Action A.1 by an additional 18 hours and to increase the limit of the average water temperature of the UHS in Surveillance Requirement 3.7.9.2 to 102 degrees F to allow continued operation of Braidwood Station, Units 1 and 2, with the average water temperature of the UHS > 100 degrees F but <= 102 degrees F for 24 hours.

At 1705 on July 7, 2012, approval of the request was verbally granted by the NRC. At 2018 on July 7, 2012, the UHS temperature was below 99.9 degrees F, and TS 3.7.9 Condition A was exited.

There were no safety consequences impacting plant or public safety as a result of this event.

Braidwood Station is submitting this as a voluntary Licensee Event Report to report a condition that may be of generic interest for licensees.

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

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Braidwood Station, Unit 1	05000456	YEAR	SEQUENTIAL NUMBER	REV NO.	2	OF	4
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**NARRATIVE**

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

Event Date: June 3, 2012

Unit: 1           MODE: 1           Reactor Power: 99 percent  
Unit: 2           MODE: 1           Reactor Power: 99 percent

Unit 1 Reactor Coolant System [AB]:       Normal operating temperature and pressure  
Unit 2 Reactor Coolant System:           Normal operating temperature and pressure

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

**Pertinent Ultimate Heat Sink [BS] Information:**

Technical Specifications (TS) 3.7.9, "Ultimate Heat Sink (UHS)," Condition A requires that with the UHS inoperable, the unit be placed in Mode 3 in 6 hours (Required Action A.1) and Mode 5 in 36 hours (Required Action A.2). Surveillance Requirement (SR) 3.7.9.2 verifies that the average water temperature of the UHS is  $\leq 100$  degrees F every 24 hours. This temperature is measured at the discharge of the operating Essential Service Water (SX) [BI] system pumps. With the average water temperature of the UHS  $>100$  degrees F, the UHS must be declared inoperable in accordance with Condition A. With the UHS inoperable, Condition A requires that both units be placed in Mode 3, "Hot Standby," within 6 hours and Mode 5, "Cold Shutdown," within 36 hours.

The basis of this TS requirement is that the UHS provides a heat sink for processing and operating heat from safety related components during a transient or accident, as well as during normal operation. This is done by utilizing the SX and the Component Cooling Water (CC) [CC] systems.

The UHS consists of an excavated essential cooling pond integral with the main cooling pond, and the piping and valves connecting the pond with the SX system and pumps. The two principal functions of the UHS are the dissipation of residual heat after reactor shutdown, and dissipation of residual heat after an accident.

The basic performance requirements are that a 30-day supply of water be available, and that the design basis temperatures of safety related equipment not be exceeded. The UHS is sufficiently oversized to permit a minimum of 30 days of operation with no makeup.

**B. Description of Event:**

From July 4 through July 6, 2012, prolonged, unprecedented hot weather and drought conditions affected the northern Illinois area. High temperatures during the daytime in conjunction with little cooling at night and little precipitation resulted in elevated water temperatures in Braidwood Station's UHS. There were no controllable measures that could be taken to immediately reduce the temperature of the UHS.

The station employs a cooling pond temperature prediction computer model to estimate future UHS temperature based on current local weather forecasts. At 0600 on July 7, 2012, the model made the first prediction indicating that the cooling pond would exceed 100 degrees F.

At 1556 on July 7, 2012, the average discharge temperature of the running essential service water pumps exceeded 100 degrees F. TS 3.7.9 Condition A was entered. Without enforcement discretion, at 2156 on July 7, 2012, Braidwood Station, Units 1 and 2, would have been required to be in Mode 3.

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**NARRATIVE**

Enforcement Discretion was requested to extend the Completion Time of Required Action A.1 by an additional 18 hours (i.e., change the current six hour Completion Time to 24 hours) and to increase the limit of the average water temperature of the UHS in SR 3.7.9.2 to 102 degrees F to allow continued operation of Braidwood Station, Units 1 and 2, with the average water temperature of the UHS > 100 degrees F but <= 102 degrees F for 24 hours. The Enforcement Discretion would end if the average water temperature of the UHS exceeds 102 degrees F or with the average water temperature of the UHS < 98 degrees F and on a declining trend.

At 1705 on July 7, 2012, approval of the request was verbally granted by the NRC, and on July 10, 2012, the written request for the Notice of Enforcement Discretion (NOED) was submitted. Compensatory actions in support of the NOED included limiting work on equipment, ensuring specific equipment and systems were protected and remained available, and as an operating compensatory measure, monitoring the Unit 2 refueling water storage tank to ensure it remained less than or equal to 95 degrees F.

At 2018 on July 7, 2012, the UHS temperature was below 99.9 degrees F, and TS 3.7.9 Condition A was exited. Since TS 3.7.9 allows six hours to shut down Units 1 and 2 and the units were in Condition A for less than six hours, there was not a condition prohibited by the plant's TS.

This information is being transmitted to the NRC as a voluntary Licensee Event Report to report a condition that may be of potential generic interest for licensees and to describe the fact that while an NOED was granted and the TS Required Action time of six hours was met, the intent of TS 3.7.9 Required Action and Completion Time was not met.

**C. Cause of Event**

The cause of this event was due to the prolonged hot weather in the area. 2012 brought unprecedented hot weather (it tied a record triple-digit streak of three consecutive days from August 1947 and July 1911) and drought condition to the northern Illinois area. High temperatures during the daytime, in conjunction with little cooling at night and little precipitation, resulted in elevated UHS water temperatures. There are no controllable measures that can be taken to immediately reduce the temperature of the UHS, in that reduction of the heat input by derating the units would have a negligible short-term effect on the temperature of the UHS.

**D. Safety Consequences:**

There were no actual safety consequences impacting plant or public safety as a result of this event.

There was potential minimal safety consequence due to extending the Completion Time of Required Action A.1 by an additional 18 hours and increasing the average water temperature of the UHS from <= 100 degrees F to <= 102 degrees F. It was determined that a two degree F increase in UHS temperature had either no impact or an insignificant impact on the loss of coolant accident (LOCA) and non-LOCA results. Additionally, component assessments were performed and determined that components served by UHS would continue to perform satisfactorily despite a two degree F increase in UHS temperature. No adverse influences on risk were identified through examination of the probabilistic risk analysis model for the plant. Additionally, despite the hot weather conditions at the time, the average water temperature of the UHS exceeded the 100 degrees F limit for less than five hours.

**E. Corrective Actions:**

There are no corrective actions for this event.

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**NARRATIVE**

The conditions requiring the requested NOED are not typical and have not occurred in the past twelve years since a license amendment was implemented to increase UHS temperature to 100 degrees F. Currently available equipment margins and in one case operational compensatory actions were required to support the increase to 102 degrees F, which are not supportive of submittal of a permanent change to the TS through a License Amendment Request. This was discussed with the NRC during the NOED request, and the NRC agreed that a follow-up amendment is not needed.

**F. Previous Occurrences:**

No previous, similar Licensee Event Reports were identified at the Braidwood Station.

**G. Component Failure Data:**

Manufacturer  
N/A

Nomenclature  
N/A

Model  
N/A

Mfg. Part Number  
N/A