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August 25, 2014
BW140071

10 CFR 50.73

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 2014-003-00 – Unanalyzed Condition Due Of Lack of Procedure Guidance Related To the Ultimate Heat Sink

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. Phil Raush, Regulatory Assurance Manager, at (815) 417-2800.

Respectfully,

Mark E. Kanavos
Site Vice President
Braidwood Station

Enclosure: LER 2014-003-00

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

NRC FORM 366 (02-2014) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 01/31/2017

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.

LICENSEE EVENT REPORT (LER)

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4. TITLE

Unanalyzed condition due of lack of procedure guidance related to the ultimate heat sink

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
06	25	2014	2014	- 003	- 00	08	25	2014	Braidwood Station, Unit 2	05000457
									FACILITY NAME: N/A	DOCKET NUMBER: N/A

9. OPERATING MODE	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: *(Check all that apply)*			
1	☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)
	☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
	☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☒ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
	☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
10. POWER LEVEL	☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
	☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
100	☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
	☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ OTHER
	☐ 20.2203(a)(2)(vi)	☐ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

LICENSEE CONTACT	TELEPHONE NUMBER *(Include Area Code)*
Phil Raush – Manager, Braidwood Regulatory Assurance	(815) 417-2800

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
N/A	N/A	N/A	N/A	N	N/A	N/A	N/A	N/A	N/A

14. SUPPLEMENTAL REPORT EXPECTED	15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR
☐ YES *(If yes, complete 15. EXPECTED SUBMISSION DATE)* ☒ NO				

ABSTRACT *(Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)*

On June 25, 2014, during the review of a License Amendment Request (LAR) to increase the Ultimate Heat Sink (UHS) maximum temperature, a question was raised whether the various pumps taking suction from the lake should be secured for UHS level inventory conservation. A review of the Braidwood abnormal operating procedures was performed and no procedure was identified to shut down the non-essential service water (WS) pumps on a loss of the cooling lake dike. Subsequent Engineering review determined the insufficient procedure guidance represented an unanalyzed condition because the design analysis did not consider the UHS inventory loss due to the running WS pump. This event is reportable in accordance with 10CFR50.73(a)(2)(ii)(B), "Any event or condition that resulted in the nuclear power plant being in an unanalyzed condition that significantly degraded plant safety".

The cause of this event is ambiguity in the UFSAR regarding the CW and WS not operating following a postulated loss of the dike event. This resulted in station personnel not recognizing procedure guidance was required to proactively secure the WS pumps to incorporate UHS design analysis requirements.

Based on the UHS inventory loss taking an extended period of time and operator capability to identify and respond to plant and equipment indications to secure the WS pumps, the ultimate heat sink remained operable and was capable of performing its safety function.

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NARRATIVE

A. Plant Condition Prior to Event

Event Date/Time: June 25, 2014 / 1533 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. There was no inoperable equipment that contributed to this event.

B. Description of Event

On June 25, 2014, while developing a license amendment request to raise the technical specification (TS) temperature limit of the ultimate heat sink (UHS), a question was raised about the need to secure non-essential service water (WS) pumps taking suction from the lake, upon a loss of the cooling lake dike. The UHS design analysis did not consider the UHS volume loss from operating circulating water (CW) or WS pumps. The question was relayed to site Operations in order to perform a comprehensive procedure review. Existing operating procedures were reviewed and concluded that no procedure guidance existed regarding securing WS pumps for low lake level following a cooling lake dike failure. Based on this information, Operations requested Engineering to provide input on the impact of the WS pumps on the UHS volume in response to a low lake level condition.

Engineering concluded that the inventory loss due to the operation of a single WS pump at full flow could deplete the UHS in approximately 3.6 days, which does not meet the UHS 30 day design requirement.

Based on this information, and the fact that no procedure steps existed to secure WS pumps on a low lake level, this represented an unanalyzed condition.

This event is reportable in accordance with 10CFR50.73(a)(2)(ii)(B), "Any event or condition that resulted in the nuclear power plant being in an unanalyzed condition that significantly degraded plant safety".

C. Cause of Event

The cause of this event is ambiguity in the UFSAR regarding the CW and WS not operating following a postulated loss of the dike event. This resulted in station personnel not recognizing procedure guidance was required to proactively secure the WS pumps to incorporate UHS design analysis requirements.

D. Safety Consequences

This condition had no actual safety consequences impacting plant or public safety.

The safety function of the UHS is to provide 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 Essential Service Water (SX) System and the Component Cooling Water (CC) System. 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 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.

The abnormal operating procedure guidance did not incorporate UHS design analysis considerations for inventory loss by securing WS pumps. The absence of specific procedural guidance did not render the UHS incapable of performing its design

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NARRATIVE

function since the procedure weakness did not result in any configuration change to the UHS making it incapable of performing its specified safety function.

In the event of the UHS design basis event resulting in lowering lake level, lowering WS header pressure and changing pump operating parameters would occur. Operators are trained to respond to plant and equipment indications and would take prudent operator action to ensure UHS function by securing WS pumps. Lake level is maintained nominally at 595' elevation and checked daily by Operations. A breach of the dike would take an extended period of time to adversely impact the UHS. The CW and WS pumps would have been tripped at or before reaching a lake level of 590' (minimum elevation for operability for the UHS) and therefore, the UHS would not have been negatively impacted.

E. Corrective Actions

- Implemented a Standing Order to raise awareness of the issue in an expedient manner until the design basis assumptions were specifically included in plant procedures.
- Revised the abnormal operating procedure steps to secure pumps affecting lake inventory on the failure of the cooling lake dike.
- Will revise the UFSAR to accurately reflect the actions required to ensure the non-safety related pumps will not impact the UHS cooling capabilities
- Will evaluate for operator training regarding low lake level during a dike failure event

F. Previous Occurrences

There were other opportunities during a procedure change made in 1993, a July 1999 license amendment request submission, a temporary TS change in August 2001, and in 2012 to identify and correct the abnormal operating procedure and ambiguity in the UFSAR prior to June 2014.

G. Component Failure Data

N/A