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10 CFR 50.73

January 3, 2006
BW060002

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

Braidwood Station, Unit 1
Facility Operating License No. NPF-72
NRC Docket No. STN 50-456

Subject: Submittal of Licensee Event Report Number 2005-003-00, Braidwood Unit 1 –
“Licensed Maximum Power Level Exceeded Due to Feedwater Heater Transient”

The enclosed Licensee Event Report is being submitted in accordance with Braidwood Station Unit 1 License Condition 2.G due to violating license condition 2.C(1), “Maximum Power Level.” License Condition 2.G requires a report to be submitted within 30 days after discovery of the event. Therefore, this report is being submitted by January 3, 2006.

There are no commitments contained in the attached report. Should you have any questions concerning this submittal, please contact Mr. Dale Ambler, Regulatory Assurance Manager, at (815) 417-2800.

Respectfully,



Keith J. Polson
Site Vice President
Braidwood Station

Enclosure: LER Number 2005-003-00

cc: Regional Administrator - Region III
NRC Braidwood Senior Resident Inspector

JE22

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: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@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 Braidwood, Unit 1	2. DOCKET NUMBER 05000456	3. PAGE 1 of 3
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4. TITLE
Licensed Maximum Power Level Exceeded Due to Feedwater Heater Transient

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
11	18	2004	2005	- 003 -	00	01	03	2006	N/A	N/A
									FACILITY NAME	DOCKET NUMBER
									N/A	N/A

9. OPERATING MODE 1	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: (Check all that apply)									
10. POWER LEVEL 99.9	<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)						
	<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

NAME Gary Dudek, Operations Director	TELEPHONE NUMBER (Include Area Code) (815) 417-2200
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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
N/A	N/A	N/A	N/A	N/A	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 November 18, 2004, at 1119, Braidwood Unit 1 experienced an isolation of extraction steam to the 15A and 15B low pressure feedwater heaters during maintenance on a level controller for the 15A emergency level control valve. At 1121, reactor power increased above the overpower delta-temperature set point on 2-of-4 channels, which initiated an auto rod-stop and a turbine runback.

An initial evaluation was performed to determine whether reactor power exceeded reportable levels during the event. The conclusion was that reactor power did not exceed 102.0%. Based on this conclusion, the transient was not considered to be a reportable event.

On December 2, 2005, at 1700, following further evaluation, it was determined that peak power likely exceeded 102% of rated thermal power. The value could have been as high as 103.3% for approximately one minute. On December 3, 2005, at 1125, a 24-hour ENS notification was made in accordance with Braidwood Station Unit 1 License Condition 2.G, due to the violation of License Condition 2.C(1) "Maximum Power Level."

The root cause for the initiating event, completed in January 2005, was determined to be a lack of understanding for a potential adverse internal component interaction during the calibration of a level controller on the same level column as the Magnetrol level switches. The corrective actions to prevent recurrence included creation of a work package standard to ensure uniformity for alignment, adjustments and calibration of the tandem float Magnetrol level control assemblies.

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

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)
Braidwood, Unit 1	05000456	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 3
		2005	- 003	- 00	

NARRATIVE (If more space is required, use additional copies of NRC Form 366A) (17)

A. Plant Operating Conditions Before The Event:

Event Date: November 18, 2004

Event Time: 1119

Unit: 1

MODE: 1

Reactor Power: 99.9 percent

Unit 1 Reactor Coolant System (RCS) [AB] Temperature: 587 degrees F, Pressure: 2238 psig

B. Description of Event:

There were no additional structures, systems or components inoperable at the beginning of the event that contributed to the severity of the event.

On November 18, 2004, at 1119, Braidwood Unit 1 experienced an isolation of extraction steam to the 15A and 15B low pressure feedwater [SJ] heaters during maintenance on a level controller for the 15A emergency level control valve. This resulted in a heater drain system [SM] level control transient cascading from the 15A/B to the 16A/B to the 17A/B heaters. This loss of feedwater preheat allowed colder water to enter the steam generators and caused reactor power to increase due to the positive reactivity feedback. The plant responded as designed to the feedwater heater transient.

At 1121, Operations was preparing to ramp back the unit per procedures. Reactor power increased above the overpower delta-temperature runback set point on 2-of-4 channels, which initiated an auto rod-stop [AA] and a turbine runback [JJ]. At 1122, the turbine power runback/auto rod stop alarm cleared. At 1127, reactor power stabilized at 78% power.

An evaluation was performed to determine if reactor power exceeded reportable levels during the event. The investigation determined that the nuclear instrumentation and 10 minute average calorimetric indicated less than 102% reactor power. The reactor coolant loop delta-temperature indications exceeded 102% power during the event; however, the delta-temperature channels are less accurate during a transient than during steady state, and were not used to determine power level during this event. It was concluded that the power range nuclear instrumentation was the most reliable indication available. Since this indication did not exceed 102.0%, the event was determined not to be reportable.

Subsequent to the event, Nuclear Fuels and Westinghouse performed an additional evaluation. This evaluation focused on the effect of the RCS cold-leg temperature changes, causing non-conservative reading in the ex-core detectors, which resulted in reactivity and power changes greater than indicated by the uncorrected plant nuclear instrumentation. With corrections applied in this evaluation, it was determined that peak power likely exceeded 102% of rated thermal power. The value could have been as high as 103.3% for approximately one minute during the transient. There are no known current industry standard guidelines for correcting indicated plant nuclear instrumentation during transient conditions.

On December 2, 2005, at 1700, based on an independent review of this evaluation, the determination was made that Unit 1 reactor power likely exceeded the license limit.

On December 3, 2005, at 1125, a 24-hour ENS notification was made in accordance with Braidwood Station Unit 1 License Condition 2.G, due to the violation of License Condition 2.C(1) "Maximum Power Level."

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NARRATIVE (If more space is required, use additional copies of NRC Form 366A) (17)

C. Cause of Event

The HI-2 switch on the 15A heater Magnetrol level control assembly was found partially actuated due to calibration issues. During the start of the normal calibration for the 15A level control assembly, the mechanical agitation due to the removal of a drain cap was sufficient to actuate the adjacent HI-2 switch contacts and isolate the extraction steam to the 15A and 15 B low pressure feedwater heaters.

The root cause for the initiating event was determined to be a lack of understanding for a potential adverse internal component interaction during the calibration of a level controller on the same level column as the Magnetrol level switches.

D. Safety Consequences:

There were no safety consequences impacting plant or public safety as a result of this event. This was an analyzed condition. The November 18, 2004 overpower transient caused by a feedwater temperature transient was bounded by the feedwater design transient described and analyzed in Braidwood UFSAR, Section 15.1.1, "Feedwater System Malfunctions Causing a Reduction in Feedwater Temperature." The calculated overpower condition existed only during the transient (i.e., approximately one minute). The plant responded to the transient as designed, with a turbine overpower delta-temperature runback.

This event did not result in a safety system functional failure.

E. Corrective Actions:

The corrective actions to prevent occurrence from the root cause evaluation completed in January 2005 included creation of a work package standard to ensure uniformity for alignment, adjustments and calibration of the tandem float Magnetrol level control assemblies.

Additional actions include developing and implementing a process to address, for overpower transient power changes such as feedwater temperature reductions, whether overpower conditions occurred, by correcting nuclear instrumentation system readings.

F. Previous Occurrences:

There have been no previous occurrences of overpower due to feedwater heater transients. There have been three overpower events in the past three years:

- Unit 1 Licensee Event Report 2004-001-00 – Licensed Maximum Power Level Exceeded Due to Inaccuracies in Feedwater Ultrasonic Flow Measurements
- Unit 2 Licensee Event Report 2003-002-00 – Licensed Maximum Power Level Exceeded Due to Inaccuracies in Feedwater Ultrasonic Flow Measurements Caused by Signal Noise Contamination
- Unit 1 Licensee Event Report 2003-002-00 – Licensed Maximum Power Level Exceeded Due To An Error In A Westinghouse Supplied Calorimetric Calculation Constant

G. Component Failure Data:

<u>Manufacturer</u>	<u>Nomenclature</u>	<u>Model</u>	<u>Mfg. Part Number</u>
N/A	N/A	N/A	N/A