Exelon Generation Company, LLC
Braidwood Station
35100 South Rt 53, Suite 84
Braceville, IL 60407-9619
Tel. 815-417-2000

www.exeloncorp.com

Exelon Nuclear

October 3, 2003
BW030082

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 2003-003-00, "Licensed Maximum Power Level Exceeded Due To An Error In A Westinghouse Supplied Calorimetric Calculation Constant"

The enclosed Licensee Event Report (LER) 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 an LER to be submitted within 30 days after discovery of the event; therefore, this report is being submitted by October 3, 2003.

Should you have any questions concerning this submittal, please contact Kelly Root, Regulatory Assurance Manager, at (815) 417-2800.

Respectfully,

T. Pacino for

Michael J. Pacino
Site Vice President
Braidwood Station

Enclosure: LER Number 2003-003-00

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

IE22

NRC FORM 366 (7-2001) U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

APPROVED BY OMB NO. 3150-0104 EXPIRES 7-31-2004

Estimated burden per response to comply with this information collection request: 50.0 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by Internet e-mail to bjs1@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NOEB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose 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. PAGE
Braidwood, Unit 1	STN 05000456	1 of 3

4. TITLE
Licensed Maximum Power Level Exceeded Due To An Error In A Westinghouse Supplied Calorimetric Calculation Constant

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MO	DAY	YEAR	YEA	SEQUENTIAL NUMBER	REV NO	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
09	03	2003	2003	-003-	00	10	03	2003	Braidwood Unit 2	05000457
									FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE	1
10. POWER LEVEL	100

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)

☐ 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)	☐ 73.73(a)(2)(viii)(B)
☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iii)	☐ 73.73(a)(2)(ix)(A)
☐ 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)
☐ 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

NAME	TELEPHONE NUMBER (Include Area Code)
Carl Dunn, Engineering Manager	(815) 417-3800

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

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	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

14. SUPPLEMENTAL REPORT EXPECTED			15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR
	Yes (If yes, complete EXPECTED SUBMISSION DATE).	X NO				

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

Braidwood Station received Nuclear Safety Advisory Letter (NSAL) 03-06, "High Net Heat Input," from Westinghouse informing the Station that an error had been found in calculations that may result in the use of a non-conservatively high Net Heat input value in the calorimetric calculations. The Net Heat input is the difference between the reactor core power and the Nuclear Steam Supply System (NSSS) power. It consists of energy provided by the reactor coolant pump to the reactor coolant, heat supplied by the pressurizer heaters, and other minor heat removal and additions such as the cooling provided by the reactor coolant pump seal injection. The result of using a non-conservatively high Net Heat input value in the calorimetric calculations was that both Unit 1 and Unit 2 operated at higher than licensed core power levels on several occasions. The Westinghouse evaluation determined that the increase in Net Heat input could be as much as 0.4 MWt. This condition applies to both Unit 1 and Unit 2.

In accordance with Braidwood Station Unit 2 License Condition 2.G a notification was made to the NRC at 1557 CST on September 3, 2003, due to violation of license condition 2.C(1), "Maximum Power Level."

A. Plant Operating Conditions Before The Event:

Unit: 1 Event Date: September 3, 2003 Event Time: 0730
MODE: 1 Reactor Power: 100 percent

Reactor Coolant System [AB]: Unit 1 and Unit 2 at normal operating temperature and pressure.

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

B. Description of Event:

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

Westinghouse issued NSAL 03-6, "High Net Heat Input" which described a minor and non-conservative error in the calculation of the Net Heat value provided by Westinghouse to a number of domestic and foreign nuclear power plants. Braidwood Units 1 and 2 were listed as affected plants.

A review of data history indicated that there were several periods where both Unit 1 and Unit 2 operated at 100% power. Adding the 0.4 MWt during these periods resulted in the Braidwood units exceeding 100% on these occasions.

The Net Heat value is the amount of heat, seen at the Steam Generators (NSSS Heat), which is not supplied by the reactor. It consists of items such as the heat supplied by the reactor coolant pumps, the heat supplied by the pressurizer heaters, and other minor heat removals and additions such as the cooling provided by the reactor coolant pump seal injection. The Net Heat value is used in the calorimetric calculation as follows:

Reactor Heat = NSSS Heat - Net Heat

A non-conservatively high Net Heat value used in the calorimetric calculation resulted in the reactor operating at higher than licensed power.

As discussed in the NSAL, heat removed from the NSSS via reactor coolant pump seal leak off, although small, was non-conservatively omitted. The NSAL estimated that this error could be as high as a 0.4 MWt larger Net Heat value.

C. Cause of Event

A Westinghouse calculation for the Net Heat input into the calorimetric calculation non-conservatively omitted the small amount of heat removed from the NSSS via the reactor coolant pump seal leak off flow.

D. Safety Consequences:

The safety analyses impact of the error is low. The uncertainty calculation for the calorimetric yields a total uncertainty of 1.79% of rated thermal power (RTP). The power-limited safety analyses assume a 2% RTP uncertainty.

Braidwood's licensed RTP is 3586.6 MWt. The magnitude of the 0.4 MWt for Braidwood is less than 0.02% RTP. Therefore, the safety analyses assumptions bounded the overpower condition.

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

E. **Corrective Actions:**

The immediate corrective action was to reduce and limit reactor power to 99.98%.

The Net Heat constant in the plant process computer, which is an input value into the calorimetric calculation, was conservatively reduced by 0.8 MWt.

The Net Heat input calculation is being revised to provide the appropriate Net Heat value to be used in the calorimetric calculation.

F. **Previous Occurrences:**

There have been no previous occurrences where incorrect calorimetric calculations resulted in exceeded licensed thermal power.

G. **Component Failure Data:**

Manufacturer	Nomenclature	Model	Mfg. Part Number
N/A	N/A	N/A	N/A