



Commonwealth Edison
Braidwood Nuclear Power Station
Route #1, Box 84
Braceville, Illinois 60407
Telephone 815/458-2801

April 22, 1993
BW/93-0160

U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Dear Sir:

The enclosed Licensee Event Report from Braidwood Generating Station is being transmitted to you with the requirement of 10CFR50.73(a)(2)(i)(B) which requires a 30-day written report.

This report is number 93-004-00, Docket No. 50-456.

K. L. Kofron
Station Manager
Braidwood Nuclear Station

KLK/AJS/dla
o:dept/zd85g

Encl: Licensee Event Report No. 93-004-00

cc: NRC Region III Administrator
NRC Resident Inspector
INPO Record Center
CECo Distribution List

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11

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)

Braidwood 1

DOCKET NUMBER (2)

05000456

PAGE (3)

1 OF 4

TITLE (4)

Technical Specification Violation Due To Incorrect Performance of Quadrant Power Tilt Ratio Calculation

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
03	28	93	93	-- 004 --	00	04	23	93	None	05000
									FACILITY NAME	DOCKET NUMBER
										05000
OPERATING MODE (9)		1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
			20.402(b)			20.405(c)			50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10)		098	20.405(a)(1)(i)			50.36(c)(1)			50.73(a)(2)(v)	73.71(c)
			20.405(a)(1)(ii)			50.36(c)(2)			50.73(a)(2)(vi)	OTHER
			20.405(a)(1)(iii)		X	50.73(a)(2)(i)			50.73(a)(2)(vii)(A)	(Specify in
			20.405(a)(1)(iv)			50.73(a)(2)(ii)			50.73(a)(2)(vii)(B)	Abstract below
			20.405(a)(1)(v)			50.73(a)(2)(iii)			50.73(a)(2)(x)	and in Text, NRC Form 366A)

LICENSEE CONTACT FOR THIS LER (12)

NAME

P. Maher, Operations

TELEPHONE NUMBER (Include Area Code)

(815)458-2801 x2202

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPD	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPD
				No					

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE).	X	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

Recalibration of Power Range Nuclear Instrumentation, as required by Technical Specification Surveillance Requirements 4.2.1.3, 4.2.1.4, and 4.3.1.1, was in progress. Performance of the calibration renders the Quadrant Power Tilt Ratio (QPTR) alarm inoperable. During the calibration of any Power Range Channel that channel is considered inoperable. Per Technical Specification Surveillance Requirement 4.2.4.1.b, QPTR must be calculated at least once per 12 hours when the alarm is inoperable. Per Technical Specification Surveillance Requirement 4.2.4.2, when power is above 75% of Rated Thermal Power, and one Power Range channel is inoperable, the QPTR must be calculated using the Movable Incore Detector System (MIDS). Braidwood Station administratively requires that QPTR be calculated once per 8 hour shift when the alarm is inoperable. On Shift 1 (2300-0700) March 28, 1993, Braidwood Unit 1 was at approximately 98% power. A QPTR calculation was performed while Power Range channel N-42 was inoperable during recalibration. The calculation was performed using the remaining three operable channels, rather than the MIDS as required by Technical Specification Surveillance Requirement 4.2.4.2. The error was discovered later on March 28, at which time the alarm and all Power Range channels had been restored to an operable condition. There have been no previous occurrences found relating to this event.

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TEXT CONTINUATION

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		93	-- 004 --	00	

TEXT (If more space is required, use additional copies of NRC Form 365A) (17)

A. PLANT CONDITIONS PRIOR TO EVENT:

Unit: Braidwood 1; Event Date: March 28, 1993;
Event Time: 0150;
Mode: 1 - Power Operation; Rx Power: 098%;
RCS [AB] Temperature/Pressure: NOT / NOP;

B. DESCRIPTION OF EVENT:

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

Pursuant to Technical Specification Surveillance Requirements 4.2.1.3, 4.2.1.4, and 4.3.1.1, calibrations were being performed on the four Power Range Nuclear instruments. The four channels are calibrated one at a time. Until all channels are recalibrated the Quadrant Power Tilt Ratio (QPTR) alarm is inoperable. Per Technical Specification Surveillance Requirement 4.2.4.1.b, QPTR must be calculated at least once per 12 hours when the alarm is inoperable. Braidwood Station administratively requires that QPTR be calculated once per 8 hour shift when the alarm is inoperable. This requirement is tracked on "Unit One Modes 1, 2, and 3 Shiftly and Daily Surveillance" 1BWOS 0.1-1,2,3.

At 0845 on March 27, 1993, Power Range channel N-41 calibration began. The calibration was finished and the channel returned to operable status at 1146. At 1315 QPTR was calculated per Braidwood Operating Surveillance 1BWOS 2.4.1.a-1, using the four operable Power Range channels. Reactor power was 99.5%.

At 1512 QPTR was calculated per Braidwood Operating Surveillance 1BWOS 2.4.1.a-1, using the four operable Power Range channels. Reactor power was 99.5%. At 1616 Power Range channel N-43 calibration began. The calibration was finished and the channel returned to operable status at 2200.

At 0127 on March 28, 1993, Power Range channel N-42 calibration began. At 0150 QPTR was calculated per Braidwood Operating Surveillance 1BWOS 2.4.1.a-1, using the three operable Power Range channels. Reactor power was 96.5%. Performance of the QPTR calculation using the three operable channels above 75% power was contrary to the requirements of Technical Specification Surveillance Requirement 4.2.4.2. The calibration was finished and the channel returned to operable status at 0600.

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

At 0735 Power Range channel N-44 calibration began. The calibration was finished and the channel returned to operable status at 1100. At this time the QPTR alarm was returned to an operable status.

Review of the evolutions that had taken place the previous shift by the oncoming Unit Supervisor identified that the last QPTR had been incorrectly performed. The total time that elapsed since it had last been successfully performed was nineteen hours forty eight minutes, or four hours and forty eight after it was required to be performed.

This report is being submitted pursuant to 10CFR50.73(a)(2)(i)(B), which requires the reporting of any operation or condition prohibited by the plant's Technical Specifications.

C. CAUSE OF EVENT

The cause of the event was a failure on the part of the Nuclear Station Operator (NSO) (licensed Reactor Operator) to ensure the requirements of Technical Specification Surveillance Requirement 4.2.4.2 were adhered to. Surveillance 1BWOS 2.4.1.a-1, "Unit One Quadrant Power Tilt Ratio Calculation", contains a NOTE which reads:

"With one Power Range Channel INOPERABLE with $50\% > \text{THERMAL POWER} \geq 75\%$, the QPTR is to be calculated using the three OPERABLE channels. With one Power Range channel INOPERABLE with $75\% > \text{THERMAL POWER} \geq 100\%$, the QPTR is to be calculated using the three OPERABLE channels taking data as directed by Tech Staff during the performance of BWVS 2.4.2-1. RECORD "N/A" for the INOPERABLE Power Range channel data"

The NSO had previously performed QPTR calculations using three channels, but at less than 75% power. The note was somewhat inadequate in that it did not explicitly state that the data must be collected using the MIDS, and instructed the NSO to record "N/A" (not applicable) for the inoperable channel.

Contributing to the failure to ensure proper performance of the QPTR calculation were the reviews of the Shiftly/Daily rounds by the Unit Supervisor (licensed Senior Reactor Operator) and the Shift Engineer (licensed Senior Reactor Operator), neither of whom identified the improperly performed surveillance.

Additionally, although it did not contribute to the event, it was also noted during the investigation that the mathematical symbols used in the procedure NOTE are incorrect. All four of the symbols should be "less than" or "less than or equal to". It is common operator knowledge that the intent of the procedure is to specify a range over which the QPTR needs to

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be performed, and not two disjointed ranges of values.

D. SAFETY ANALYSIS

The safety significance of the event was minimal. QPTR was verified to be within Technical Specification limits prior to the event (QPTR calculation) and after the event (absence of alarm when all four power range channels had been recalibrated and the alarm returned to an operable condition). During the time period between the last valid QPTR calculation and the alarm being returned to an operable condition, unit power was reduced by approximately 2%. Power changes of this magnitude typically do not cause Xenon oscillations sufficient to cause the QPTR limit to be challenged.

E. CORRECTIVE ACTIONS

There were no immediate corrective actions necessary as the QPTR alarm had been returned to an operable condition and did not indicate QPTR above the limit when the improperly performed surveillance had been discovered.

The NSO, Unit Supervisor, and Shift Engineer were counselled about their performance relating to the event and managements expectations regarding surveillance performance and review.

The NOTE in 1BWOS 2.4.1.a-1 (and the identical NOTE in 2BWOS 2.4.1.a-1) will be changed to explicitly denote the need for data collection using the MIDS, and to correct the errors in the symbols. This will be tracked to completion by action item 456-180-93-00401.

This event will be included in Licensed Operator Required Reading in order to reinforce expectations with all licensed personnel. This will be tracked to completion by action item 456-180-93-00402.

F. PREVIOUS OCCURRENCES

There were no previous occurrences found relating to this event.

G. COMPONENT FAILURE DATA

This event was not the result of component failure, nor did any components fail as a result of this event.