

Commonwealth Edison Company
Braidwood Generating Station
Route #1, Box 84
Braceville, IL 60407-9619
Tel 815-458-2801



July 11, 1997
BW/97-0041

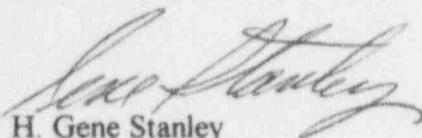
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Washington, D.C. 20555

To Whom It May Concern:

The enclosed Licensee Event Report from Braidwood Generating Station is being transmitted in accordance with the requirement of 10 CFR 50.73(a)(2)(i), which requires a 30-day report.

This report is number 97-005-00, Docket No. 50-456.

Yours Truly,


H. Gene Stanley
Site Vice President
Braidwood Nuclear Station

HGS/PS/vk
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Enc: Licensee Event Report
No. 456-97-005-00

cc: NRC Region III Administrator
NRC Resident Inspector
INPO Record Center
ComEd Distribution Center
I.D.N.S.
I.D.N.S. Resident Inspector

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LICENSEE EVENT REPORT (LER)

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. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT

FACILITY NAME (1): Braidwood Unit 1	DOCKET NUMBER (2) 05000456	PAGE (3) 1 of 5
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TITLE (4) Inadequate P-11 ACOT/Channel Calibration Due to Defective Procedure

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
06	12	97	97	005	00	07	09	97	Braidwood Unit 2	05000457
									Byron Units 1 and 2	05000454/455

OPERATING MODE (9) 1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)
POWER LEVEL (10) 99	

<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 73.71(b)
<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(c)
<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> OTHER
<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.73(a)(2)(vii)	(Specify in Abstract below and in Text, NRC Form 366A)
<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	
<input type="checkbox"/> 20.2203(a)(2)(iv)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)	
<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME Albert Stogsdill, System Engineer	TELEPHONE NUMBER (Include Area Code) (815) 458-2801 Extension 2843
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)				EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
<input checked="" type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input type="checkbox"/> NO	X					

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

On 6-12-97, during a review of an industry Operating Experience which identified a lack of proper testing of the P-11 interlock circuitry, it was determined that the same situation existed at Braidwood. Performing the customary verification of the associated Solid State Protection System input relays does not properly check the P-11 input relays. Because of this deficiency a valid test of the entire channel, for the P-11 function, as defined by technical specifications was not met. At 1530 on 6-12-97, the P-11 function for Braidwood Unit 2 was declared inoperable and required actions directed by the Limiting Conditions for Operations stated in Technical Specifications were taken. The declaration of an inoperable P-11 function for Braidwood Unit 1 was not made because it was verified that the input relays were functional after reviewing data from a recent startup which occurred since the last surveillance was performed on the associated channels. The cause for this event is due to improper development of the surveillance procedure to properly test the P-11 function as it leaves the process protection system instrumentation and inputs into the Solid State Protection System. This event had minimal safety significance because the P-11 interlock was found to be operating correctly in response to plant conditions. Planned corrective actions include revision of surveillance procedures to properly verify the P-11 function to the point of input into the Solid State Protection System. There have been three (3) previous events involving inadequate surveillances. This event is being reported pursuant to 10CFR50.73(a)(2)(i)(B), any operation or condition prohibited by the plant's Technical Specifications.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT

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Braidwood Unit 01	05000456	97	005	00	2 of 5

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

A. PLANT CONDITIONS PRIOR TO EVENT:

Unit(s): 01/02	Event Date: 6-12-97	Event Time: 1530 Hours
Reactor Mode(s): 1/1	Power Level(s): 99%/99%	RCS [AB] Temp./Press. NOT/NOP NOT/NOP

B. DESCRIPTION OF EVENT:

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

On June 12, 1997, after reviewing Operating Experience report OE8435, "SSPS P-11 Not Surveilled Quarterly," Braidwood Station personnel found that the condition existed at Braidwood Station. The OE identified inadequate testing of interlock circuitry for the P-11 Permissive at Callaway Station.

The problem was with the testing results from the normally deenergized state of the P-11 function as it occurs from the W7300 process protection instrumentation during normal plant operations. Performing the customary verification of the associated Solid State Protection System input relays does not properly check the P-11 input relays. Customary verification of the portion of the instrumentation in question is made by verifying a change in state of the input relay via the trip status light in the main control room when an associated test switch is placed from normal to the test position. When placing the test switch from normal to test, the connection from the output of the process protection instrumentation to the input relay is opened. For a normally energized relay, this causes the relay to deenergize and the response can be verified. A similar process exists in most of the protective functions which input to the Solid State Protection System but not in the case of the P-11 function. The action of placing the test switch from normal to the test position for the P-11 function does not produce a change in state of the associated input relay, because of its normally deenergized condition, the functionality of that portion of the circuit can not be made. Because of this deficiency a valid test of the entire channel, for the P-11 function, as defined by technical specifications was not met.

The following procedures test the circuitry associated with the P-11 function:

- Bwis 3.1.1-437, OPERATIONAL TEST AND CHANNEL VERIFICATION/CALIBRATION FOR LOOP _P-0455 PRESSURIZER PRESSURE PROTECTION CHANNEL I CABINET 1 (_PA01J)
- Bwis 3.1.1-438, OPERATIONAL TEST AND CHANNEL VERIFICATION/CALIBRATION FOR LOOP _P-0456 PRESSURIZER PRESSURE PROTECTION CHANNEL II CABINET 2 (_PA02J)
- Bwis 3.1.1-439, OPERATIONAL TEST AND CHANNEL VERIFICATION/CALIBRATION FOR LOOP _P-0457 PRESSURIZER PRESSURE PROTECTION CHANNEL III CABINET 3 (_PA03J)
- 1/2BwOS 3.1.1-20, UNIT ONE/UNIT TWO SSPS, REACTOR TRIP BREAKER, AND REACTOR TRIP BYPASS BREAKER BI-MONTHLY (STAGGERED) SURVEILLANCE (TRAIN A)
- 1/2BwOS 3.1.1-21, UNIT ONE/UNIT TWO SSPS, REACTOR TRIP BREAKER, AND REACTOR TRIP BYPASS BREAKER BI-MONTHLY (STAGGERED) SURVEILLANCE (TRAIN B)

After initial review of the event described in the Operating Experience, a prompt investigation to conclusively determine applicability to Braidwood was initiated.

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Actions performed as part of the investigation included a review of the circuit illustrated on schematic drawings, review of surveillance test procedures, other surveillances/plant activities which may have routinely checked the function, conferences with other plants responding to the issue, and discussions with other Braidwood station key personnel along with senior plant management. As a result of the investigation and discussions with senior management, it was determined that Braidwood was also not properly satisfying the surveillance requirements in performing a valid test of the P-11 input relays. At 1530 on 6-12-97, the P-11 function for Braidwood Unit 2 was declared inoperable and required actions directed by the Limiting Conditions for Operations stated in Technical Specifications were taken. The action required by the Limiting Conditions for Operations for an inoperable P-11 function require that the Permissive be verified, by observation of the annunciator window, to be in the correct state within one (1) hour. Operations successfully completed this action upon notification of the subject issue. The declaration of an inoperable P-11 function for Braidwood Unit 1 was not made because it was verified that the input relays were functional. The data reviewed and verified was the transition of each of the P-11 bistable inputs at the required Reactor Coolant System pressure. This information was provided to the plant process computer by the Solid State Protection System computer demultiplexer. The computer demultiplexer is redundant trip status indication and can serve the same purpose to verify the function of the trip status light.

This event is being reported pursuant to 10CFR50.73(a)(2)(i)(B), any operation or condition prohibited by the plant's Technical Specifications. This problem has existed since initial plant startup for Unit 1 and Unit 2 in that a valid test of the P-11 input relays was not performed during the surveillance.

C. CAUSE OF EVENT:

The cause of this event was a defective procedure due to improper development of the surveillance procedure to properly test the P-11 function as it leaves the process protection system instrumentation and inputs to the Solid State Protection System. Verification of interlock functions is defined by Technical Specifications for Analog Channel Operational Test and Channel Calibrations surveillances. The surveillance requirements for the P-11 Function require verification Quarterly for the Analog Channel Operational Test and once per 18 months for the Channel Calibration. This deficiency has existed since initial plant startup.

D. ASSESSMENT OF SAFETY CONSEQUENCES:

On increasing pressure, the P-11 Permissive automatically reinstates Safety Injection actuation on low pressurizer pressure and low steamline pressure and automatically blocks steamline isolation on negative steamline pressure rate. The setpoint for P-11 is less than or equal to 1930 psig with an allowable value of less than or equal to 1936.

On decreasing pressure, the P-11 Permissive allows the manual block of Safety Injection actuation on low pressurizer pressure and low steamline pressure and allows steamline isolation on negative steamline pressure rate to become active upon manual block of low steamline pressure SI.

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The safety injection system accumulator discharge isolation valves are motor-operated, normally de-energized open valves that are controlled from the main control board.

These valves are interlocked such that:

- a. They open automatically on receipt of a safety injection signal with the main control board switch in either the "AUTO" or "CLOSE" position.
- b. They open automatically whenever the reactor coolant system pressure is above the safety injection unblock pressure (P-11 Permissive) specified in the technical specifications and the main control board switch is in the "AUTO" position. The valves are administratively maintained de-energized open when RCS pressure is above 1000 psig.

At power, the input relays to the RP system for the P-11 Permissive circuitry are de-energized. This is the fail-safe condition for these relays. So not testing the P-11 Permissive interlock had minimal impact on plant safety. With the relays de-energized, the RP System would have automatically reinstated Safety Injection actuation on low pressurizer pressure and low steamline pressure and automatically blocked steamline isolation on negative steamline pressure rate when increasing RCS pressure above P-11.

The safety significance of not testing the P-11 Permissive interlock means the relays might not have energized on decreasing pressure. This may have prevented the manual blocking of the safety injection signal during a controlled shutdown. This would result in a safety injection signal when shutting down. However, based on the data showing that the interlock operated correctly during the last shutdown of startup on each unit, it is believed that the circuitry was operable and would have performed as required.

E. CORRECTIVE ACTIONS:

Revision of surveillance procedures to properly verify the P-11 function to the input of the Solid State Protection System. This will be tracked by NTS item #456-180-97-SCAQ0000501.

Completion of surveillance execution for both Braidwood Unit 1 and Braidwood Unit 2 incorporating the revisions relevant to this issue prior to expiration of the current surveillance intervals. This will be tracked by NTS item #456-180-97-SCAQ0000502.

Review of other normally deenergized process protection system inputs to the Solid State Protection System for a similar deficiency in testing. This review included all permissive, trip and interlock inputs from the W7300, NIS, and field contacts. This action was performed as part of the initial investigation with no similar deficiencies identified. This action is complete.

An effectiveness review will be conducted on the corrective actions associated with this event. This will be tracked by NTS item #456-200-97-SCAQ00053ER.

F. PREVIOUS OCCURRENCES:

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

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A search was conducted for items concerning inadequate surveillances.

LER NUMBER	TITLE
05000456-93-003	Missed Tech Spec Surveillance Due To Preservice Design Deficiency In SSPS Test Circuitry
05000456-95-010	Inadequate Surveillance Procedure Could Have Led to ECCS Inoperability Due to Personnel Error and Management Deficiency
05000456-97-006	Technical Specification Entry Into 3.0.3 and Unit 1 Cooldown Due to ECCS Venting Issues. This was due to an inadequate surveillance caused by management deficiencies.

A review of the corrective actions for the above LERs determined that they would not have prevented the current event.

G. COMPONENT FAILURE DATA:

MANUFACTURER ----- NOMENCLATURE MODEL MFG. PART NO.

Since no component failure occurred, this section is not applicable.