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

November 19, 1992
BW/92-0595

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

Dear Sir:

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

This report is number 92-013-00, Docket No. 50-456.

K. L. Kofron
Station Manager
Braidwood Station

KLK/AJS/dla
675ZD85G

Encl: Licensee Event Report No. 92-013-00

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

230046

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LICENSEE EVENT REPORT (LER)

Facility Name (1)	Docket Number (2)	Page (3)
Braidwood 1	0 5 0 0 0 4 5 6	1 of 0 3

Title (4)
Spurious Safety Injection Signal Due to Unknown Causes

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 Names	Docket Number(s)
									None	0 5 0 0 0
1 0	2 3	9 2	9 2	0 1 1 3	0 0	1 1	2 3	9 2		0 5 0 0 0

OPERATING MODE (9)	5	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)					
POWER LEVEL (10)	0 0 0	___ 20.402(b)	___ 20.405(c)	_X_ 50.73(a)(2)(iv)	___ 73.71(b)		
		___ 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)(vii)	___ Other (Specify in Abstract below and in Text)		
		___ 20.405(a)(1)(iii)	___ 50.73(a)(2)(i)	___ 50.73(a)(2)(viii)(A)			
		___ 20.405(a)(1)(iv)	___ 50.73(a)(2)(ii)	___ 50.73(a)(2)(viii)(B)			
		___ 20.405(a)(1)(v)	___ 50.73(a)(2)(iii)	___ 50.73(a)(2)(x)			

LICENSEE CONTACT FOR THIS LER (12)

Name	TELEPHONE NUMBER
	AREA CODE
D. Comisky, Technical Staff Ext. 2775	8 1 5 4 5 8 - 2 8 0 1

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
___ Yes (If yes, complete EXPECTED SUBMISSION DATE)	_X_ NO				

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

At 0508 the Unit 1 Train B Solid State Protection System (SSPS) Bimonthly Surveillance, 1BwOS 3.1.1-21, was in progress. While performing step 15.4 of the procedure, in which the Input Error Inhibit switch is placed in the NORMAL position, a Train B Safety Injection (SI) signal for Main Steam Line (MSL) low pressure was processed. This resulted in an injection into the Reactor Coolant System. All plant equipment operated as expected with the exception of the 1B Reactor Containment Fan Cooler (RCFC), which did not start in low speed. The cause of the event was a spurious Train B SSPS safety injection signal on Main Steam Line Low Pressure due to unknown reason. Extensive troubleshooting efforts described below did not identify a positive root cause for this event. Procedure 1BwOS 3.1.1-21 will be enhanced to add a separate verification of the status of the Bypass Permissive Block lights. The surveillance test for the RCFC Slave Relay for the low speed start, was successfully reperformed. Troubleshooting will be performed on the Train B Low MSL Block / Reset switch when plant conditions permit. There has been a previous occurrence of a spurious Train B Safety Injection signal, however the causes for that event are known to be different.

A. PLANT CONDITIONS PRIOR TO EVENT:

Unit: Braidwood 1; Event Date: October 23, 1992; Event Time: 0508
Mode: 5 - Cold Shutdown; Rx Power: 000%;
RCS [AB] Temperature/Pressure: 170 Degrees F / 350 psig

B. DESCRIPTION OF EVENT:

There were no plant systems or equipment inoperable at the beginning of the event that contributed to the significance of the event.

Surveillance testing of both trains of the Braidwood Station Unit 1 Solid State Protection System were scheduled for the morning of October 23, 1992 to support the continued startup from the ongoing refueling outage. Four Nuclear Station Operators (NSOs) [licensed] were assigned to perform the test. The Train A test was successfully completed first, with no problems encountered.

At 0508 Unit 1 Train B Solid State Protection System (SSPS) Bimonthly Surveillance, 1BwOS 3.1.1-21, was in progress. While performing step 15.4 of the procedure, in which the Input Error Inhibit switch is placed in the NORMAL position, a Train B Safety Injection (SI) signal for Main Steam Line (MSL) low pressure was processed. This resulted in an injection into the Reactor Coolant System. All plant equipment operated as expected, with the exception of the 1B Reactor Containment Fan Cooler (RCFC), which did not start in low speed as expected.

At 0545, all plant equipment was restored to normal status using 1BwEP 0 and 1BwEP ES 0.1.

This event is being reported pursuant to 10CFR50.73(a)(2)(iv) - any event that resulted in manual or automatic of any Engineered Safety feature (ESF), including the Reactor Protection System (RPS). This event was not reported as an ECCS discharge because it was not a valid discharge, and the plant parameters did not meet the requirements for initiating ECCS.

C. CAUSE OF EVENT:

The root cause of the event was a spurious Train B SSPS safety injection signal on Main Steam Line Low Pressure due to unknown reason. Extensive troubleshooting efforts described below did not identify a positive root cause for this event.

1. At approximately 0700 on Oct. 23, the operators present when the actuation took place were interviewed . The written statements provided by the operators were clarified, and the sequence of events, as recorded by the Sequents of Events Recorder(SER), was discussed. The operators indicated that the sequence of events was the same as that for the A Train SSPS Bimonthly, which was successfully performed earlier the same shift. It was verified that the proper blocks had been reactivated in the previous step of the procedure, and that the independent verification had been properly performed and documented.

2. At approximately 0930, troubleshooting was performed by dropping and then resetting the Train B blocks, to determine if the Steamline Pressure SI Block switch (1/SIS1RBB) was working properly. This was performed by Operations with Tech Staff assistance, utilizing BwOP RP-6, Ground Return Fuse Replacement, as a guide. The 1B DG was taken to Maintenance Outage, and the 1SI8801B valve was closed with its breaker off, to prevent undesired transients if the SI actuation did occur. No problems were found.

3. At approximately 1070, this troubleshooting was repeated with some additions, utilizing steps 1, 2, 3, 14, and 15 of 1BwOS 3.1.1-21 as a guide. This simulated the actual exit condition of the surveillance where the problem had occurred. As before, no problems were found with 1/SIS1RBB.

4. At approximately 1300, 1BwOS 3.1.1-21 was performed to complete surveillance, to verify the operability of B Train SSPS. Once again, no problems were encountered and the surveillance was successfully completed.

All other plant equipment that was not out of service res[illegible]

D. SAFETY ANALYSIS:

This event had no effect on the safety of the plant or the public. The SSPS actuations that were generated were not required and were inappropriate for the existing plant conditions. The redundant train of SSPS was operable and available to initiate the necessary ESF actuations had a valid need occurred. Additionally, it has been concluded that the problems with the Train B SSPS processing circuitry would not have precluded its initiation of the appropriate ESF actuations had a valid need occurred.

Under the worst case condition of a valid situation occurring requiring any or all of the ESF actuation functions of SSPS there would still be no effect as this is enveloped in section 7 of the Updated Final Safety Analysis Report. The redundancy and physical train separation of the SSPS provide for initiation and actuation of adequate components to perform all required safety functions from a single train of SSPS combined with its associated train of operable output components. The A Train of SSPS including all associated A train components were operable and available throughout the event.

E. CORRECTIVE ACTIONS:

Procedure 1BwOS 3.1.1-21 will be enhanced to add a separate verification of the status of the Bypass Permissive Block lights. Additionally, the corresponding surveillances for the 1A, 2A, and 2B SSPS bimonthly tests will be similarly enhanced. This will be tracked to completion by action item 456-1B0-92-01301.

Surveillance 1BwOS 3.2.1-B15, which tests the RCFC Slave Relay for the low speed start, was successfully reperformed.

Additional troubleshooting will be performed on the Train B Low MSL Block / Reset switch when plant conditions permit. This will be tracked to completion by action item 456-1B0-92-01302.

F. PREVIOUS OCCURRENCES:

There has been a previous occurrence of a spurious Train B safety injection signal, however the causes for that event are known to be different than for this event.

DVR 20-1-90-039/ LER 90-018; Spurious Train B Solid State Protection System Actuations Due To Component Failure, Personnel Error, and Component Interface Design Deficiency

G. COMPONENT FAILURE DATA:

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