



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

May 3, 1990
BW/90-0484

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 in accordance with the requirements of 10CFR50.73(a)(2)(iv) which requires a 30-day written report.

This report is number 90-003-00; Docket No. 50-457.

Very truly yours,

R. E. Querio
Station Manager
Braidwood Nuclear Station

REQ/JDW/jfe
(7126z)

Enclosure: Licensee Event Report No. 90-003-00

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

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PDR ADOCK 05000457
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LICENSEE EVENT REPORT (LER)

Form Rev 2.0

Facility Name (1) Braidwood 2 Docket Number (2) 015000457 Page (3) 1 of 4

Title (4)
Inadvertant Train B Safety Injection due to Programatic Deficiency

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)
04	05	90	90	003	00	05	04	90	None	01500001

OPERATING MODE (9) N

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)

<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(c)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)
<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)
<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> Other (Specify
<input type="checkbox"/> 20.405(a)(1)(iii)	<input type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	in Abstract
<input type="checkbox"/> 20.405(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)	below and in
<input type="checkbox"/> 20.405(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(x)	Text)

LICENSEE CONTACT FOR THIS LER (12)

Name Phil Lau, HPES Coordinator Ext. 2957 TELEPHONE NUMBER
AREA CODE 815 458-2801

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

CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)

Yes (If yes, complete EXPECTED SUBMISSION DATE) NO

Expected Submission Date (15) _____

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

At 0730 on April 6, 1990 a Nuclear Station Operator (NSO) placed Train B of the Solid State Protection System (SSPS) in test for maintenance to troubleshoot a defective test lamp. At 0905 it was identified that the voltage drop across the relay that was in series with the test lamp was greater than optimum value. This combined with a blue lens cap caused the light to appear dark in the florescent illumination of the room. At 0916 the NSO restored the Train B SSPS to normal by placing the Input Error Inhibit Switch in the "Normal" position and the Output Mode Selector Switch in the "Operate" position. This resulted in a Pressurizer Low Pressure and Main Steamline Low Pressure Safety Injection (SI) initiation signal for Train B. Restoring inputs to normal prior to reestablishing the blocks with Pressurizer and Steamline pressures below the setpoints initiated an SI signal. The cause of this event was a programatic deficiency. Operating had no formal policy regarding manipulations of SSPS panel components following maintenance. A contributing cause to this event was personnel error. A program will be developed to provide specific guidance for restoring an SSPS train to operable status. Training will be conducted. The lens will be evaluated for replacement. A caution placard will be placed on the SSPS panels. There have been no previous similar occurrences.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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		Year	///	Sequential	///	Revision				
				Number		Number				
Braidwood 2	0 5 0 0 0 5 7	9 0	-	0 0 3	-	0 0	0 2	OF	0 4	

TEXT Energy Industry Identification System (EIIS) codes are identified in the text as [XX]

A. PLANT CONDITIONS PRIOR TO EVENT:

Unit: Braidwood 2; Event Date: April 6, 1990; Event Time: 0916;
 Mode: N - Defueled; Rx Power: 0%;
 RCS [AB] Temperature/Pressure: Ambient/Atmospheric

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.

Instrument Maintenance Department Personnel were preparing to troubleshoot an apparent defective test lamp circuit in Train B Solid State Protection System (SSPS) [JE].

At approximately 0730 on April 6, 1990 the Station Control Room Engineer (SCRE) (Licensed Senior Reactor Operator) authorized an Instrument Maintenance Technician (IMT) (non-licensed Instrument Technician) to troubleshoot the cause of a defective test lamp in the Train B SSPS panel, 2PA10J. The SCRE assigned an extra Nuclear Station Operator (NSO) (Licensed Reactor Operator) to assist the IMT.

The IMT and the NSO proceeded to the Unit 2 Auxiliary Electrical Equipment room (AEER) where Panel 2PA10J was located. The IMT asked the NSO to establish the conditions under which the test lamp was expected to illuminate. The NSO notified the Unit 2 NSO and then placed the Input Error Inhibit Switch in the "Inhibit" position and the Output Mode Selector Switch in the "TEST" position. The NSO provided the IMT with a copy of Unit 2 Braidwood Operating Surveillance (2BwOS) 3.1.1-21, Unit Two SSPS, Reactor Trip Breaker, and Reactor Trip Bypass Breaker Bi-Monthly (Staggered) Surveillance (Train B) after opening the procedure to the spot where the test lamp deficiency had been identified. The NSO then returned to the Control Room where he continued the performance of other unrelated activities. The IMT began troubleshooting in the SSPS Panel.

At 0905 the IMT completed his trouble shooting activities. The IMT identified that the voltage drop across the relay that was in series with the test lamp was 9.47 VDC. This was greater than the optimum value of 6.54 VDC. With the slightly larger voltage drop combined with a blue lens cap the light appeared to be dark in the bright florescent illumination of the AEER. When the lens cap was shaded by the IMT holding his hand above the light it was evident that the bulb was lit, and the test circuit was functioning properly. The IMT requested an NSO to perform the Post Maintenance Verification in accordance with his work package.

The SCRE assigned the same NSO who had performed the initial setup to assist the IMT. The extra NSO returned to the AEER several minutes later.

At approximately 0914 the NSO verified that the lamp was illuminating when required during the testing sequence. The IMT informed the NSO that he could restore the Train B SSPS to normal.

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At 0916 the extra NSO informed the Unit 2 NSO that he was restoring the Train B SSPS to normal. The extra NSO then placed the Input Error Inhibit Switch in the "Normal" position and the Output Mode Selector Switch in the "Operate" position. This resulted in a Pressurizer Low Pressure and Main Steamline Low Pressure Safety Injection (SI) initiation signal for Train B. Placing the Output Mode Selector switch in the Test position, as the NSO did to setup the panel for trouble shooting, reset the Pressurizer Low Pressure and Main Steamline Low Pressure SI blocking circuitry for Train B. These circuits are normally blocked during shutdown when Pressurizer pressure decreases below 1930 psig. Restoring inputs to normal prior to reestablishing the blocks with Pressurizer and Steamline pressures below the setpoints of 1829 psig and 640 psig respectively resulted in Train B SSPS initiating an SI signal.

All equipment that was operable functioned as designed.

At 0922 the Train B SI was reset.

The appropriate NRC notification via the ENS phone system was made at 1029 pursuant to 10CRF50.72(b)(2)(ii).

This event is being reported pursuant to 10CFR50.73(a)(2)(iv) - any event or condition that resulted in manual or automatic actuation of any Engineered Safety Feature, including the Reactor Protection System.

C. CAUSE OF EVENT:

The root cause of this event was a programmatic deficiency. Operating Department had no formal policy regarding manipulations of SSPS panel components following maintenance or during non-routine evolutions. While the surveillance procedures provided detailed and accurate steps for normal panel testing they were not well suited for setup and restoration following trouble shooting activities. During previous similar activities Operating personnel had either used the applicable portions of these procedures as guides or had relied on their knowledge and experience. The SSPS panels are complex and require manipulations that must be performed in a specific sequence to provide for the availability of wanted functions and to avoid inadvertent actuation of undesired functions. Manipulation of components in these panels should only be made within the bounds of a structured policy. The failure to have this policy created the event.

A contributing cause to this event was a cognitive personnel error by the extra NSO. It is the responsibility of the NSO to verify that actions taken are correct and appropriate prior to performing those actions. The failure of the extra NSO to perform the "self check" responsibility prior to performing actions that would return the Train B SSPS to an operable status contributed to the event.

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D. SAFETY ANALYSIS:

This event had no effect on the safety of the plant or the public. All operable systems performed as designed. The reactor vessel was defueled.

Had this event occurred in Mode 1 at 100% power there would still be no effect. The Intermediate Range High Flux and the Power Range High Flux Low Setpoint Reactor Trips would be re enabled and a reactor trip would occur. No SI or Main Steamline isolation would occur as Pressurizer Pressure and Main Steamline Pressure would be above the respective setpoints.

E. CORRECTIVE ACTIONS:

Automatic actions for operable systems were verified. The SI was reset and those components that repositioned were returned to normal.

Based on the initial information associated with this event the personnel directly involved with this participated in a "Braidwood Station Error Evaluation Presentation" to identify root and contributing causes of this event. Based on the conclusions of this presentation the following actions will be taken:

1. A program will be developed to provide specific guidance for actions taken to remove an SSPS train from operable status and restoring an SSPS train to operable status. This program will address both startup, shutdown, and operational modes. This action will be tracked to completion by action item 457-200-90-00801.
2. A training tailgate session will be conducted to discuss this event with appropriate Operating personnel. This action will be tracked to completion by action item 457-200-90-00802.
3. An evaluation will be conducted to determine if the blue lens on the master relay test lamp can be replaced with a lens that provides greater visibility. This action will be tracked to completion by action item 457-200-90-00803.
4. A placard will be placed on the SSPS panels cautioning the operator to ensure that the blocks are re-established prior to returning the Input Error Inhibit Switch to normal. This action will be tracked to completion by action item 457-200-90-00804.

F. PREVIOUS OCCURRENCES:

There have been no previous similar occurrences.

G. COMPONENT FAILURE DATA:

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