Commonwealth Edison
Byron Nuclear Station
4450 North German Church Road
Byron, Illinois 61010

December 27, 1990

Ltr: BYRON 90-1199

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

Dear Sir:

The enclosed Licensee Event Report from Byron Generating Station is being transmitted to you in accordance with the requirements of 10CFR50.73(a)(2)(iv).

This report is number 90-014; Docket No. 50-454.

Sincerely,

R. Pleniewicz
Station Manager
Byron Nuclear Power Station

RP/mcw

Enclosure: Licensee Event Report No. 90-014

cc: A. Bert Davis, NRC Region III Administrator
W. Kropp, NRC Senior Resident Inspector
INPO Record Center
CECo Distribution List

(0680R/0081R-5)

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LICENSEE EVENT REPORT (LER)

Form Rev 2.0

Facility Name (1)	Docket Number (2)	Page (3)
Byron, Unit 1	0 5 0 0 0 4 5 4	1 of 0 3

Title (4)

Feedwater Isolation at Power during Safeguards Relay Test due to Personnel Error

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)
									Byron Unit 2	0 5 0 0 0 4 5 5
1 2	0 3	9 0	9 0	0 1 4	0 0	1 2	3 1	9 0		0 5 0 0 0

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)					
1	___ 20.402(b)	___ 20.405(c)	X 50.73(a)(2)(iv)	___ 73.71(b)			
POWER LEVEL (10) 0 9 8	___ 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
P. Casarotto, Technical Staff Ext. 2415	
T. Didier, Unit One Operating Engineer Ext. 2216	8 1 5 2 3 4 - 5 4 4 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)

On December 3, 1990, at 1240 while performing scheduled Slave Relay Surveillance 1BOS 3.2.1-980 "Unit One Engineered Safeguard Features Actuation System Instrumentation Slave Relay Surveillance (Train A Feedwater Isolation, Reactor Trip K637)" an actual Feedwater (FW) [SJ] Isolation Signal (FWI) was generated causing a loss of feedwater. A Reactor trip on low-2 Steam Generator level in the 1D Steam Generator ensued. All components associated with a FWI/Reactor trip responded as expected with the exception of valve 1FW039A which had dual position indication.

During performance of the surveillance, switch S817 is placed in a "Push to Test" position. After pushing in the switch and verifying indications, the system must be restored by resetting three switches in sequence. S817 is one of the three switches and should be the last to be restored to its normal position. Contrary to the procedure, the S817 switch was restored to its normal position first immediately after the "Push to Test" step was performed. The Feedwater Isolation occurred several steps later when the switch that is normally first to be reset was reset second. The FW Isolation Auxiliary Relays are a latching type and had not been reset with the remaining switch prior to removing the testing block with the other two switches.

Electrical Maintenance Department performed an inspection of S817. No problems were found with the switch. Operating Department Technical Specification surveillance 1BOS 3.2.1-980 was re-performed verifying operability. Required Listening 90-042 for Nuclear Station Operators describing the details of this event was developed and conducted prior to resuming Slave Relay Testing. A note will be added to the appropriate procedures indicating that this is not a spring return to normal switch.

This event is reportable per 10CFR50.73(a)(2)(iv) as any event or condition that resulted in manual or automatic actuation of any Engineered Safeguard Feature.

A. PLANT CONDITIONS PRIOR TO EVENT:

Event Date/Time 12-3-90 / 1240

Unit 1 MODE 1 - Power Operation Rx Power 98% RCS [AB] Temperature/Pressure Normal Operating

B. DESCRIPTION OF EVENT:

On December 3, 1990, at 1240 while performing scheduled Slave Relay Surveillance 1BOS 3.2.1-980 "Unit One Engineered Safeguard Features Actuation System Instrumentation Slave Relay Surveillance (Train A Feedwater Isolation, Reactor Trip K637)" an actual Feedwater (FW) [SJ] Isolation Signal (FWI) was generated causing a loss of feedwater. The FWI occurred as the test signal was being reset by a Nuclear Station Operator (NSO, licensed) at the Safeguards Test Cabinet 1PA11J. A Reactor trip on low-2 Steam Generator level in the 1D Steam Generator ensued. All components associated with a FWI/Reactor trip responded as expected with the exception of 1FW039A which had dual position indication. At the time of the trip, there was one outstanding NWR for repairs on 1FW039A involving repacking. Unit 1 re-entered Mode 1 on December 6, 1990 following a normal startup.

Personnel error was involved in this event. No systems or components were inoperable at the beginning of this event which contributed to this event.

This event is reportable per 10CFR50.73(a)(2)(iv) as any event or condition that resulted in manual or automatic actuation of any Engineered Safeguard Feature.

C. CAUSE OF EVENT:

Review of the sequence of events recorder and other information narrowed the probable cause of the event to a malfunction of test switch SB17 or personnel error in the placement of the switch. The event could not be reproduced without mispositioning the switch. As a precautionary measure, NWR B81193 was written to inspect and replace Test Switch SB17. The specific cause of this event was most likely cognitive personnel error.

During performance of the surveillance, switch SB17 is placed in a "Push to Test" position. After pushing in the switch and verifying indications, the system must be restored by resetting three switches in sequence. SB17 is one of the three switches and should be the last to be restored to its "Normal" position. Contrary to the procedure, the SB17 switch was restored to its "Normal" position first immediately after the "Push to Test" step was performed. The Feedwater Isolation occurred several steps later when the switch that is normally first to be reset was reset second. The FW Isolation Auxiliary Relays are a latching type and had not been reset with the remaining switch prior to removing the testing block with the other two switches.

A contributing factor to this error is that most of the switches in this panel are of a spring return to "Normal" type while the rest stay in the "Push to Test" position. Sixteen out of twenty-eight procedures performed in 1PA11J involve spring return switches. SB17 does not spring return to normal. All Slave Relay Surveillance procedures containing a spring return switch indicate so at the appropriate step but those procedures that have a switch that does not spring back do not say that the switch remains in that position.

The NSO involved had not performed this particular Slave Relay Surveillance previously and had just completed a surveillance where the switch did spring return. His expectation that the switch should spring return to "Normal" caused him to place the switch back to "Normal" position.

D. SAFETY ANALYSIS:

Plant and public safety was not affected by this event. Even though the initial conditions were as severe as would be expected for this type of event, safe and normal plant shutdown was completed. 1FW039A valve indicated dual position, as a precautionary measure the upstream manual isolation valve (1FW041A) was closed to ensure isolation.

E. CORRECTIVE ACTIONS:

Electrical Maintenance Department performed an inspection of SB17. No problems were found with the switch. As a precautionary measure SB17 was replaced. Operating Department Technical Specification surveillance 1BOS 3.2.1-9B0 was re-performed verifying operability. Required Listening 90-042 for Nuclear Station Operators describing the details of this event was developed and conducted prior to resuming Slave Relay Testing.

An Event Review Board was conducted and recommended that a note should be added to the procedures that have switches which do not spring return to normal stating that the switches remain in the "Push to Test" position. AIR # 90-29R tracks this item. An HPES evaluation of this event is being conducted.

Valve 1FW039A was repaired under NWR B78781 and was verified to operate acceptably.

F. PREVIOUS OCCURENCES:

None.

G. COMPONENT FAILURE DATA:

No components failed or were caused to fail during this event.