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

December 31, 1990
BW/90-1252

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 require a 30-day written report.

This report is number 90-021-00; Docket No. 50-456.

Very truly yours,

K. L. Kofron
Station Manager
Braidwood Nuclear Station

KLK/JDW/clf
(7126z)

Enclosure: Licensee Event Report No. 90-021-00

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

IE22
1/1

LICENSEE EVENT REPORT (LER) Form Rev 2.0

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

Title (4)

Reactor Trip as a Result of a Feedwater Pump Trip Due to Low Oil Pressure

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 2	0 1	9 0	9 0	0 2 1	0 0	1 2	3 1	9 0		0 5 0 0 0		

OPERATING MODE (9)	1
POWER LEVEL (10)	0 9 9

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

___	20.402(b)	___	20.405(c)	X	50.73(a)(2)(iv)	___	73.71(b)
___	20.405(a)(1)( )	___	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(c)(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
Dave Johnson, Technical Staff Engineer Ext. 2478	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)

___ Yes (If yes, complete EXPECTED SUBMISSION DATE)	X NO	Expected Submission Date (15)	Month Day Year

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

At 1645 on December 1, 1990 the 1B Feedwater Pump (FW), one of the two on line FW pumps, tripped. The Nuclear Station Operator (NSO) initiated a turbine runback to 60% power in accordance with procedure. Steam Generator (SG) levels decreased due to both the reduction in FW flow from the loss of the FW pump and the "shrink" effect on the SG level instrumentation from the reduction in Steam Flow as a result of the turbine runback. At 1647 the level in the 1B SG reached the Lo-2 reactor trip setpoint and a Reactor Trip, Turbine Trip, Feedwater Isolation, and Auxiliary FW automatic initiation occurred as designed. All components associated with these actuations functioned as designed. The cause of the FW pump trip was low oil pressure. It is believed that the suction of the high pressure oil pump became partially plugged from a sludge burst. The standby oil pump started but the low pressure "dip" that occurred was of sufficient magnitude to reach the low oil pressure trip setpoint. The turbine runback was initiated, but equilibrium FW flow /Steam flow was not achieved prior to reaching the Reactor Trip setpoint. A contributing cause to the event was a procedural deficiency. The procedure did not address closing the recirculation valve on the tripped FW pump. The oil system has been cleaned and is being monitored. The procedure has been revised. No previous occurrences.

A. Plant Conditions Prior to Event:

Unit: Braidwood 1; Event Date: December 1, 1990; Event Time: 1647;
Mode: 1 - Power Operation; Rx Power: 99%;
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.

At 1645 on December 1, 1990 the 1B Feedwater Pump (FW) [SJ], one of the two on line FW pumps, tripped. The Nuclear Station Operator (NSO) (Licensed Reactor Operator) initiated a turbine runback to 60% power, 700 MWE, in accordance with Braidwood Unit 1 Operating Abnormal Procedure (1BwOA) SEC-1, "Condensate / Feedwater Malfunction - Unit 1". Steam Generator (SG) [JB] levels in all four SGs decreased. This was due to both the reduction in FW flow from the loss of the 1B FW pump and the "shrink" effect on the SG level instrumentation from the reduction in Steam Flow [SB] as a result of the turbine runback.

At 1647 the level in the 1B SG reached the Lo-2 reactor trip setpoint of 40.8% and as a result a Reactor Trip, Turbine Trip, Feedwater Isolation, and Auxiliary FW automatic initiation occurred as designed. All components associated with these actuations functioned as designed. The NSOs immediately placed the unit in a stable condition, performing the appropriate steps of the Braidwood Unit 1 Emergency Procedures at the direction of their Licensed Senior Reactor Operator Supervisor.

The appropriate NRC notification via the ENS phone system was made at 1839 pursuant to 10CFR50.72(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 the 1B FW pump trip was low oil pressure. It is believed that the suction of the high pressure oil pump became partially plugged from a sludge burst. The standby oil pump started but the low pressure "dip" that occurred was of sufficient magnitude to reach the low oil pressure trip setpoint and as a result, the 1B FW pump tripped. The remaining FW pump was not capable of providing adequate FW flow to maintain SG level at 99% power. The appropriate turbine runback was initiated, but the establishment of equilibrium FW flow /Steam flow conditions at a lower power level was not achieved prior to SG level decreasing to the Reactor Trip setpoint.

A contributing cause to the event was a procedural deficiency. 1BwOA SEC-1 did not address closing the recirculation valve on the tripped FW pump. The recirculation valve, which opens when the associated FW pump flow decreases below 5000 gpm, diverted flow away from the running FW pump suction, reducing overall suction pressure. The increase in FW flow that would have resulted from the higher suction pressure that occurs with the recirculation valve closed, may have been adequate to maintain SG levels above the trip setpoint.

D. Safety Analysis:

This event had no effect on the safety of the plant or the public. All safety systems operated as designed. The Auxiliary Feedwater (AF) BA system auto started and restored SG levels as designed.

Under the worst case condition of a loss of FW event occurring at 100% power there would still be no effect as this is enveloped in section 15 of the Updated Final Safety Analysis Report. The Lo 2 SG level setpoint ensures that the reactor is taken sub-critical while sufficient inventory is available in the SG to provide for initial decay heat removal. The automatic initiation of one of the two redundant AF pumps provides adequate water inventory addition to re-establish SG levels to normal and remove long term decay heat without significant impact to the temperature, pressure, and inventory of the RCS. Both AF pumps were available and initiated as designed during this event.

E. Corrective Actions:

A portable centrifuge has been connected to the 1B FW pump oil reservoir to remove water and debris from the oil system. This centrifuge will be periodically rotated to the oil reservoirs of FW pumps on both units to help ensure that the oil systems are maintained contaminant and water free as possible.

Methods of improving the FW pump Gland Steam System to minimize potential water intrusion into the oil system are being evaluated. This action will be tracked to completion by action item 456-200-90-05401.

A "First Out" annunciator box has been temporarily connected to the 1B FW Pump lube oil system to monitor system performance.

1BwOA SEC-1 and its Unit 2 counterpart 2BwOA SEC-1 have been revised to direct that the recirculation valve of a tripped FW pump be closed. These changes have been made via a temporary procedure change and are being evaluated for permanent inclusion into the procedures. This action will be tracked to completion by action item 456-200-90-05402.

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.