



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

March 28, 1991
BW/91-0274

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)(i)(B) which require a 30-day written report.

This report is number 91-002-00; Docket No. 50-456.

Very truly yours,

K. L. Kofron
Station Manager
Braidwood Nuclear Station

KLK/AS/clf
(226/ZD35G)

Enclosure: Licensee Event Report No. 91-002-00

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

9104020280 910328
PDR ADUCK 05000456
S PDR

TE22
11

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 | 4

Title (4)

Failure to Restore Service Water Radiation Monitors caused by Procedure 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)													
0	2	2	6	9	1	9	1	0	0	0	1	2	8	9	1	NONE	0	5	0	0	0	1	1

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)	
NONE	6	20.402(b)	20.405(c)
POWER LEVEL (10)	0 0 0	20.405(a)(1)(i)	50.36(c)(1)
		20.405(a)(1)(ii)	50.36(c)(2)
		20.405(a)(1)(iii)	X 50.73(a)(2)(i)
		20.405(a)(1)(iv)	50.73(a)(2)(ii)
		20.405(a)(1)(v)	50.73(a)(2)(iii)
			50.73(a)(2)(iv)
			50.73(a)(2)(v)
			50.73(a)(2)(vi)
			50.73(a)(2)(vii)
			50.73(a)(2)(viii)(A)
			50.73(a)(2)(viii)(B)
			50.73(a)(2)(ix)

LICENSEE CONTACT FOR THIS LER (12)

Name	TELEPHONE NUMBER
D. Nelson, Regulatory Assurance	Ext. 2497
	AREA CODE 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 NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC

SUPPLEMENTAL REPORT EXPECTED (14)

Expected Submission (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 February 8, 1991, system lineups for Unit 1 Containment Integrity Leakage Rate Test were in progress. All Unit 1 containment penetrations not required to support unit operation were isolated. The Service Water penetration would be isolated by closing valves in the flowpath that provides cooling water to heat exchangers inside containment. After closing the valves, radiation monitors that obtain their suction from the containment return piping lost their sample flows and were declared inoperable. These monitors analyze for radioactivity and operation is required by Technical Specifications. Containment pressurization was completed on February 21. On February 23, the valves were reopened. This reestablished service water flow through containment and the radiation monitors were now required to be in operation. On February 26, operators realized that the radiation monitors were not in service. The monitors were restarted. The cause was inadequate technical review of radiation monitor operability and procedural deficiencies. The applicable procedures will be revised. The details of this event will be discussed in licensed operator training. There has been one previous occurrence. Previous corrective actions are not applicable.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

Form Rev 2.0

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (5)			Page (3)	
		Year	Sequential Number	Revision Number		
Braidwood 1	0 5 0 0 0 4 5 6	9 1	0 0 2	0 0	0 2	0 4

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

A. Plant Conditions Prior to Event:

Unit: Braidwood 1; Event Date: February 26, 1991; Event Time: 1049;
 Mode: 6 - Refueling; Rx Power: 0%;
 RCS [AB] Temperature / Pressure: Ambient;

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.

On February 8, 1991, system lineups for surveillance 1BWVS 6.1.2.a-1 (Unit 1 Primary Containment type A Integrated Leakage Rate Test) (ILRT) were in progress. All Unit 1 containment penetrations not required to support Mode 5 (Cold-Shutdown) operation were isolated. The Service Water (SX) [BI] containment penetration would be isolated by closing valves 1SX016A/B and 1SX027A/B. These valves, normally open, are in the SX flowpath that provides cooling water to the Reactor Containment Fan Coolers (RCFC)(VP) [VA] inside containment. An interlock exists to prevent isolation of the SX containment penetration. The design purpose is to ensure a flowpath is always available to the operating SX pump. In accordance with the ILRT procedure, jumpers had been installed to defeat this interlock. Since an alternate flowpath was available for the SX pump, valves 1SX016A/B and 1SX027A/B were closed. Caution cards were placed on the valve control switches in the Main Control Room (MCR) to indicate removal of the interlock. After closing the valves, the SX radiation monitors (PR) [IL] 1RE-PR002 and 1RE-PR003 lost their sample flows. These monitors obtain their suction from the SX return piping and analyze for radioactivity that could be released from containment if a RCFC developed a tube leak. Operation of these monitors is required by Technical Specifications (TS). Monitor operability is verified by a channel check. This is documented during the daily performance of surveillance 0BWOS 0.1-0 by licensed personnel.

At 0200 the radiation monitors were declared inoperable and to document compliance with TS, Limiting Condition for Operation Action Requirement (LCOAR) 0BWOS 3.3.9-1a was initiated. To comply with the designated TS action requirements, the Chemistry Department was notified to obtain grab samples of the SX return piping and analyze for radioactivity at least once per 12 hours.

The samples were obtained and analyzed. However, on February 12, the collection of grab samples depleted the available inventory of water in the return piping. A decision was made by Chemistry and Operating personnel that sampling was unnecessary since no SX flow was entering containment and that the LCOAR had been conservatively entered. At 1253 the LCOAR was exited. This action ended TS sampling requirements.

ILRT containment pressurization was completed on February 21. On February 23, at 0810, to restore the SX system to a normal lineup, valves 1SX016A/B and 1SX027A/B were opened. This reestablished SX flow through containment and the SX radiation monitors were now required by TS.

On February 26, at 1049, during the restoration of valve interlocks, operators in the MCR realized that the radiation monitors were not in service. The monitors were restarted. Initially the 1RE-PR002 monitor failed to start. LCOAR 0BWOS 3.3.9-1a was entered and all TS requirements were immediately satisfied. This monitor was returned to service at 2138 and the LCOAR was exited.

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												Form Rev 2.0	
FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)						Page (3)					
		Year	Sequential Number	Revision Number									
Braidwood 1	0 5 0 0 0 4 5 6	9	1	-	0	0	2	-	0	0	0 3 OF 0 4		
TEXT Energy Industry Identification System (EIIIS) codes are identified in the text as [XX]													

C. Cause of Event:

The cause of the event was inadequate technical review of TS radiation monitor requirements and procedural deficiencies.

The ILRT surveillance procedure did not identify that isolation of SX to containment would result in a loss of flow to the radiation monitors. This resulted in an overreliance on shift personnel to restore the monitors when SX flow was reestablished. Also, the procedure for starting a SX pump does not refer to the required radiation monitors. To start a SX pump, the SX containment isolation valves are open. This alignment provides a flowpath through containment that requires the radiation monitors to be in service. The failure to provide adequate guidance is considered a procedural deficiency.

Administrative control was established on the radiation monitors when the LCOAR was entered. The TS action chosen required SX return header pipe samples. But the sampling requirements could not be satisfied when the piping was drained and then the LCOAR was exited. This inadvertently removed the tracking function of the LCOAR to restore the radiation monitors prior to opening the SX containment isolation valves. When the LCOAR was entered, a different TS action statement was considered for these monitors. This TS action does not require grab samples. However, this action was not chosen because the SX containment isolation valves could have been locally opened without notification to the MCR. Also, valve leakage was considered and it was felt that sampling was a conservative action. Since the valves did not leak, sampling removed the water that remained and the LCOAR was exited.

Monitor status is checked daily by surveillance OBWOS 0.1-0. Operators perform a channel check using a control console (RM-11) in the MCR. The monitor status is displayed on the RM11 and recorded as a color-code on the surveillance data sheet. The applicable status color code when a monitor has lost sample flow is Dark Blue (DB). If a monitor is coded DB then it is considered inoperable and the applicable TS action(s) are implemented. But DB is acceptable when the monitored process stream is not in use. When SX was isolated to containment, DB was correctly recorded on the surveillance data sheet. However, after SX was restored to containment, licensed personnel failed to recognize that the process stream was now in use. The monitor status continued to be recorded as DB until the condition was noticed. A contributing factor to this error was that many radiation monitors are DB when a unit is shutdown. The incorrect data recorded is considered a cognitive personnel error and contributed to the amount of time that the process stream was not monitored.

D. Safety Analysis:

This event had no effect on the safety of the plant or the public. SX pressure inside the RCFC piping was higher than containment pressure. If an RCFC developed a tube leak, the leakage would have been collected inside containment. Since the unit was in a stable reactivity condition during the entire event, no potential existed for a release path from containment via the SX return piping.

The SX radiation monitors only provide indication of activity levels. Upon reaching the high activity setpoint, an alarm is received in the MCR. There are no automatic actions that will occur. Grab samples of the SX return piping are required by TS 3.11.1.1 on a weekly basis when the activity level is greater than $1.0 \text{ E-06 } \mu\text{Ci/ml}$ above background. This specification ensures that the concentration of radioactive materials released to unrestricted areas will be less than the levels specified in 10CFR Part 20. As an administrative requirement, the Chemistry Department obtains weekly samples of the SX return flow without regard to the activity level. Therefore, the longest time that the SX flowpath would be unmonitored is one week.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

Form Rev 2.0

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			Page (3)		
		Year	///	Sequential Number	///	Revision Number	
Braidwood 1	0 5 0 0 0 4 5 6	9 1	-	0 0 2	-	0 0	0 4 OF 0 4
TEXT Energy Industry Identification System (EIIS) codes are identified in the text as [XX]							

E. Corrective Actions:

When operators recognized the radiation monitors were not operating, the monitors were restarted. Initially the IRE-PR002 monitor failed to start. It was declared inoperable and all applicable TS requirements were satisfied. Later this monitor was restarted and declared operable.

The applicable operating procedures for the SX and VP systems will be revised to include SX radiation monitor operability requirements. This item will be tracked to completion by Action Item No. 456-200-91-01101.

The ILRT surveillance will be revised to include tracking of the radiation monitors when the SX containment penetrations are isolated. This item will be tracked to completion by Action Item No. 456-200-91-01102.

To provide for a more consistent application of TS actions during radiation monitor inoperability, an analysis of LCOAR DBW05 3.3.0-1a will be conducted by shift operating personnel. Procedural revisions will be made as identified. This item will be tracked to completion by Action Item No. 456-200-91-01103.

To ensure that proper surveillance performance is achieved and that management expectations are known, the details of this event will be discussed in licensed operator requalification training by senior operating management. This item will be tracked to completion by Action Item No. 456-200-91-01104.

F. Previous Occurrences:

LER 86-006: FAILURE TO FOLLOW ACTION STATEMENT 3.3.3.10 ON FAILURE OF IRT-PR020 (AUX BLDG EFFLUENT RAD MONITOR)

Previous corrective actions are not applicable to this event.

G. Component Failure Data:

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