NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Clinton Power Station	0 5 0 0 0 4 6 1	1 OF 0 3

TITLE (4) Automatic Isolation of Reactor Water Cleanup System Due to High Differential Flow Signal Caused by Feedwater Flow/Pressure Perturbations

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 6	0 5	8 7	8 7	— 0 3 0	— 0 0	0 6	2 9	8 7	NONE	0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9)	2	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	0 1	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, NRC Form 366A)
		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
R. F. Schaller, Assistant Plant Manager - Operations, Ext. 3205	AREA CODE 2 1 7 9 3 5 - 8 8 8 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)

ABSTRACT

On June 5, 1987, at 1836 hours, with the plant in Mode 2 (STARTUP), less than 1% Power and the Reactor Water Cleanup System Pumps secured, the Reactor Water Cleanup System automatically isolated due to a high differential flow signal while attempting to establish feedwater flow with the Condensate Booster Pumps by opening the Reactor Pressure Vessel inlet valves B21-F065A and B21-F065B. Following this event, operations personnel verified that the high differential flow trip signal was not the result of leakage from the system. The system remained isolated until feedwater flow manipulations were complete and feed flow had stabilized. The cause of this event is attributed to Reactor Water Cleanup System differential flow detector sensitivity to flow/pressure perturbations that result due to feedwater flow initiation and flowrate adjustments at very low reactor vessel feedwater flowrates. The isolation of the Reactor Water Cleanup System does not cause the loss of any plant safety features and does not represent a condition adverse to plant safety. Plant water chemistry was monitored to ensure that water chemistry remained within required limits. This event is reportable under the provisions of 10CFR50.73(a)(2)(iv) due to an automatic actuation of an Engineered Safety Feature.

IE22
1/1

NRC Form 366
(9-83)

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Clinton Power Station	0 5 0 0 0 4 6 1	8 7	— 0 3 0	— 0 0	0 2 OF 0 3

TEXT (If more space is required, use additional NRC Form 366A's) (17)

DESCRIPTION OF EVENT

On June 5, 1987, at 1836 hours, with the plant in Mode 2 (STARTUP), less than 1% Power and the Reactor Water Cleanup System Pumps secured, the Reactor Water Cleanup (RWCU) System [CE] automatically isolated due to a high differential flow signal while attempting to establish feedwater flow with the Condensate Booster Pumps [P] by opening the Reactor Pressure Vessel inlet valves [V] B21-F065A and B21-F065B. Upon opening valves B21-F065A and B21-F065B, a high differential flow signal was initiated which caused inboard containment isolation valves G33-F001, G33-F053, G33-F040 and G33-F028 to isolate. No other equipment/components were inoperable at the beginning of this event which contributed to this event.

CAUSE OF EVENT

The cause of this event is attributed to Reactor Water Cleanup System differential flow detector sensitivity to flow/pressure perturbations that result due to feedwater flow initiation and flowrate adjustments at very low reactor vessel feedwater flowrates (less than 300 gallons per minute).

CORRECTIVE ACTION

Following this isolation event, operations personnel verified that the high differential flow trip signal was not the result of leakage from the RWCU System. The RWCU System remained isolated until the feedwater flow manipulations had been completed and feedwater flow stabilized.

Illinois Power's (IP) Nuclear Station Engineering Department has reviewed and evaluated prior events involving this system and root cause and has provided recommendations to IP Management regarding possible enhancements to the RWCU System that will minimize/eliminate the flow/pressure perturbation effects on the RWCU differential flow instruments at very low reactor feedwater flowrates. These recommendations are being reviewed and evaluated by IP Management for possible implementation.

ANALYSIS OF EVENT

This event is reportable under the provisions of 10CFR50.73(a)(2)(iv) as an automatic actuation of an Engineered Safety Feature. During this event, the RWCU System responded as designed to the high differential flow signal by isolating the RWCU System through closure of the inboard/outboard containment isolation valves. The RWCU Pumps had been secured prior to the event.

The isolation of the RWCU System does not cause the loss of any plant safety features and does not represent a condition adverse to plant safety. Plant water chemistry is monitored to ensure that primary system water chemistry remains within the required limits.

ADDITIONAL INFORMATION

Other Clinton Power Station LERs involving automatic isolation of the RWCU System due to high differential flow are listed below:

LER 86-007-00 occurred on October 9, 1986. This RWCU isolation was caused by a lack of proper venting and filling of the system prior to system restoration.

LER 87-013-00 documents five automatic isolations of the RWCU System due to high differential flow trip signals caused by flow/pressure perturbations that resulted from feedwater flowrate adjustments/changes at very low reactor vessel feedwater flowrates (less than 300 gpm).

LER 87-024-00 documents an automatic isolation of the RWCU System due to a high differential flow trip signal caused by flow/pressure perturbations that resulted during the transition of reactor vessel level control when water was being let down to the Main Condenser from the RWCU System through Drain Flow Regulating Valve G33-F033 and compounded by a high differential flow error signal from the Channel B differential flow circuitry.

For further information regarding this event, contact R. F. Schaller, Assistant Plant Manager - Operations at (217) 935-8881, Ext. 3205.

U-600966
L45-87(06-29)-L
2C.220

ILLINOIS POWER COMPANY

CLINTON POWER STATION, P.O. BOX 678, CLINTON, ILLINOIS 61727

June 29, 1987 10CFR50.73

Docket No. 50-461

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

Subject: Clinton Power Station - Unit 1
Licensee Event Report No. 87-030-00

Dear Sir:

Please find enclosed Licensee Event Report No. 87-030-00: Automatic Isolation of the Reactor Water Cleanup System Due to High Differential Flow Signal Caused By Feedwater Flow/Pressure Perturbations. This report is being submitted in accordance with the requirements of 10CFR50.73.

Sincerely yours,

F. A. Spangenberg, III
Manager - Licensing and Safety

RLC/krm

Enclosure

cc: NRC Resident Office
NRC Region III, Regional Administrator
INPO Records Center
Illinois Department of Nuclear Safety
NRC Clinton Licensing Project Manager

IE22
1/1