

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1): Clinton Power Station															DOCKET NUMBER (2): 050004611										PAGE (3): 1 OF 04				
TITLE (4): Isolation of Reactor Water Cleanup System During Trending of Main Steam Line Tunnel Temperatures Due to Random Failure of a Temperature Module																													
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					05000				
010			188		88		88		001		000		127			88							05000						
OPERATING MODE (9): 1					THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11):																								
POWER LEVEL (10): 0710					20.402(b)					20.405(c)					X					50.73(a)(2)(iv)					73.71(b)				
					20.405(a)(1)(i)					50.36(e)(1)										50.73(a)(2)(iv)					73.71(c)				
					20.405(a)(1)(ii)					50.36(e)(2)										50.73(a)(2)(iv)					OTHER (Specify in Abstract below and in Text: NRC Form 350A)				
					20.405(a)(1)(iii)					50.73(a)(2)(ii)										50.73(a)(2)(v)(i)(A)									
					20.405(a)(1)(iv)					50.73(a)(2)(ii)										50.73(a)(2)(v)(i)(B)									
					20.405(a)(1)(v)					50.73(a)(2)(iii)										50.73(a)(2)(ix)									
LICENSEE CONTACT FOR THIS LER (12):																													
NAME: R. F. Schaller, Assistant Plant Manager - Operations, X 3205															TELEPHONE NUMBER:														
															AREA CODE														
															2179351-8881														
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	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC															
X	I	J	T	D	S	R	2	8	1	Y																			
SUPPLEMENTAL REPORT EXPECTED (14):															EXPECTED SUBMISSION DATE (15):					MONTH	DAY	YEAR							
YES / NO										X NO																			
ABSTRACT (Limit to 1400 spaces; i.e., approximately fifteen single-space typewritten lines) (16):																													

ABSTRACT

On January 1, 1988, with the plant in Mode 1 (POWER OPERATION), a spurious partial isolation of the Reactor Water Cleanup System (RWCU) occurred while trending main steam line (MSL) tunnel temperatures during power ascension following maintenance. When the control room operator placed the READ/SET switch on the MSL tunnel heating, ventilating and air conditioning differential temperature module to the READ position, two containment isolation valves closed and the RWCU pumps tripped. One other RWCU containment isolation valve was already closed due to the system lineup. An additional RWCU isolation valve which did not close since the seal-in time delay was not actuated due to the short duration of the initiation signal was closed by operators. Operators performed the automatic isolation checklist. The Maintenance group was requested to investigate the problem. The cause of the event is attributed to random failure of the temperature module. The temperature module was replaced. The event was assessed as not safety significant since the RWCU system responded as designed and since a short duration loss of cleanup capabilities does not affect safety. This event is reportable under the provisions of 10CFR50.73(a)(2)(iv).

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES 8/31/88

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
Clinton Power Station	0 5 0 0 0 4 6 1 8 8	—	0 0 1	—	0 0	0 2	OF 0 4

TEXT (If more space is required, use additional NRC Form 385A x) (17)

DESCRIPTION OF EVENT

On January 1, 1988, at approximately 0815 hours, with the plant in Mode 1 (POWER OPERATION), at approximately 70% reactor [RCT] power, a spurious partial isolation of the Reactor Water Cleanup System [CE] (RWCU) occurred. The event occurred while trending main steam line tunnel temperatures during power ascension following maintenance. When the control room operator (CRO) placed the READ/SET switch [HS] on the Division 1 main steam line tunnel heating, ventilating and air conditioning differential temperature module [TDS] 1E31-N605A [IJ] to the READ position, containment isolation valves [ISV] 1G33-F039 and 1G33-F054 closed and the RWCU pumps tripped. Containment isolation valves 1G33-F004 and 1G33-F034 are also affected by this circuit, but 1G33-F004 did not close and 1G33-F034 was already closed due to the system lineup. Operators subsequently closed valve 1G33-F004 at 0823 hours on January 1. Operators performed the automatic isolation checklist. The Control and Instrumentation (C&I) maintenance group was requested to investigate the problem. No other equipment or components were inoperable at the time of this event that contributed to this event. No other automatic or manually initiated safety system responses were necessary to place the plant in a safe and stable condition.

CAUSE OF EVENT

The cause of this event is attributed to random failure of the 1E31-N605A temperature module.

The C&I maintenance group issued maintenance work requests addressing the spurious isolation and the 1G33-F004 valve that did not close. Extensive troubleshooting and efforts to recreate the spurious trip signal under Maintenance Work Request (MWR) C44135 identified no malfunction. The temperature module was then replaced with a new component on January 2, 1988. Troubleshooting of the 1G33-F004 valve under MWR C44137 to determine why the valve did not close indicates that the logic functions properly, resulting in the conclusion that the seal-in time delay was not actuated due to the short duration of the initiation signal.

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TEXT (If more space is required, use additional NRC Form 385A's) (17)

Nuclear Station Engineering Department (NSED) was requested to investigate the event and to determine the root cause. NSED and C&I Maintenance group performed bench tests on the removed temperature module. During the critique of this event, the CRO indicated that he received frequent static electricity shocks during the shift that the event occurred. Attempts were made during the bench tests to determine if a static discharge could initiate a trip when placing the READ/SET switch to the READ position. No trips were experienced and NSED concluded that a static discharge was not the cause for the spurious RWCU isolation. The bench tests also verified that previous component upgrades to prevent spurious trips, erroneous readings, and overheating problems were installed correctly, and also verified that mechanical and electrical noise was not being induced when placing the switch to the READ and SET positions. One spurious trip occurred during the bench testing when placing the READ/SET switch to the READ position, but the exact cause of the trip could not be replicated. NSED concluded that the temperature module was the cause of the spurious trip and attributes the root cause to random failure.

CORRECTIVE ACTION

The temperature module, 1E31-N605A, was replaced with a new component on January 2, 1988, under Maintenance Work Request C44135.

ANALYSIS OF EVENT

This event is reportable under the provisions of 10CFR50.73(a)(2)(iv) due to an automatic actuation of an Engineered Safety Feature.

The E31-N605A module was returned to service at 1257 hours on January 2, 1988. The RWCU system was isolated from 0815 hours on January 1 until 1257 hours on January 2, 1988. The PWCU pumps were returned to service at 1839 hours on January 2, 1988.

Assessment of the safety consequences and implications of this event indicates that this event was not safety significant for existing plant conditions or other plant modes or power levels. During the event, the RWCU system responded as designed to the high differential temperature signal by closing the appropriate containment isolation valves and tripping the RWCU pumps. 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 as a short duration loss of cleanup capabilities does not affect safety. During this event reactor water chemistry met Technical Specification requirements.

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TEXT (If more space is required, use additional NRC Form 305A's) (17)

ADDITIONAL INFORMATION

The faulty temperature module was manufactured by Riley-Beaird, Incorporated and is model number 86VEEF-EG.

LER 86-001-00 discusses an automatic Reactor Water Cleanup System isolation that resulted from a spurious signal caused by a grounded thermocouple in the temperature module.

LER 87-031-00 discusses an automatic Reactor Water Cleanup System isolation that resulted from a spurious signal caused by intermittent failure of a temperature module.

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

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L45-88(01-27)-LP

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ILLINOIS POWER COMPANY



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

January 27, 1988

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. 88-001-00

Dear Sir:

Please find enclosed Licensee Event Report No. 88-001-00:
Isolation of Reactor Water Cleanup System During Trending of Main Steam
Line Tunnel Temperatures Due to Random Failure of a Temperature Module.
This report is being submitted in accordance with the requirements of
10CFR50.73.

Sincerely yours,

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

RSF/krm

Enclosure

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

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