

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Clinton Power Station	DOCKET NUMBER (2) 0 5 0 0 0 4 6 1 1	PAGE (3) 1 OF 0 6
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TITLE (4) Pump Room Cooling Fan Left Shutdown Following Surveillance Due to Insufficient Review of Tag-Out Instructions Renders The High Pressure Core Spray System Inoperable

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	1 3	8 8	8 8	0 1	8 0	0 8	0 6	8 8	None			0 5 0 0 0
THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)												

OPERATING MODE (9) 1	POWER LEVEL (10) 0 8 5	20.402(b)	20.406(a)(1)(i)	20.406(a)(1)(ii)	20.406(a)(1)(iii)	20.406(a)(1)(iv)	20.406(a)(1)(v)	20.406(e)	50.36(e)(1)	50.36(e)(2)	50.73(a)(2)(i)	50.73(a)(2)(ii)	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)	73.71(b)	73.71(c)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
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LICENSEE CONTACT FOR THIS LER (12)		TELEPHONE NUMBER	
NAME R. F. Schaller, Assistant Manager - Plant Operations X3205		AREA CODE 2 1 1 7	NUMBER 9 3 1 5 - 1 8 1 8 1 1

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)									
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NFRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NFRDS
A	V I Y	F I A N I	B 1 5 1 1 5	Yes					

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO				

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

ABSTRACT

On July 7, 1988 with the plant in Mode 1 (POWER OPERATION), the Nuclear Regulatory Commission (NRC) Resident Inspector found that a High Pressure Core Spray (HPCS) pump room fan which was required to be running continuously, was shutdown. Previously, on March 2, 1988, it was identified that this fan would not automatically start as required, following the initiation of the HPCS pump. In order to maintain HPCS operable, the fan was placed in manual and was to be run continuously. The fan was shutdown June 15, 1988 for maintenance during an Emergency Core Cooling System (ECCS) Division III outage which began June 13, 1988. Following maintenance and testing, the fan's operability was not verified, nor was the fan placed in manual. On July 7, 1988, when the fan was found shutdown, the fan was started and run continuously. The fan was subsequently repaired and its ability to automatically start was verified. The cause of this event is attributed to a lack of awareness of required equipment status, due to an insufficient review of tag instructions. Corrective actions include counselling of the individuals involved, instructing operators to include all pertinent information on caution tags, and increasing training on support systems.

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TEXT (if more space is required, use additional NRC Form 306A's) (17)

DESCRIPTION OF EVENT

On July 7, 1988, at approximately 0500 hours, with the plant in Mode 1 (POWER OPERATION) at approximately 100% reactor [RCT] power, the Nuclear Regulatory Commission (NRC) Resident Inspector found an Emergency Core Cooling System [ECCS] Equipment Cooling (VY) fan [FAN], 1VY08CA, shutdown in the High Pressure Core Spray (HPCS) [BG] pump [P] room. The fan was required to be running continuously.

It had previously been identified that fan 1VY08CA would not start automatically following the initiation of the HPCS pump. In order to meet operability requirements, since it would not start automatically, the fan was required to be placed in manual and to run continuously. Investigation into the event revealed that the fan was shutdown on June 15, 1988, during an ECCS Division III outage which began June 13, 1988, and was not restarted prior to completing the outage, as required. HPCS was therefore inoperable for a total of twenty-five days, in violation of Technical Specification 3.5.1.

Technical Specification 3.5.1 requires that ECCS Division III be operable in Modes 1, 2 (STARTUP), and 3 (HOT SHUTDOWN). ECCS Division III consists of an operable HPCS system. The HPCS pump room fans are part of the HPCS support system. They are necessary to maintain pump room temperatures low to prevent the pump motor from overheating. The fans are not redundant. Each fan provides 50% of the designed cooling capacity required to maintain pump room temperatures low. Therefore, with a fan incapable of automatically starting following HPCS pump initiation, in order to maintain HPCS operable, the fan must be run continuously. When ECCS Division III is inoperable, Technical Specification 3.5.1 Action c requires that operability be restored within fourteen days or that the plant be shutdown. On July 7, 1988, upon discovery that the fan was shutdown, it was started and run continuously until repairs were initiated. The fan was repaired and verified to automatically start on July 11, 1988, at approximately 2125 hours.

On March 2, 1988, at approximately 0240 hours, during the performance of the HPCS pump operability surveillance, one of the two HPCS pump room fans would not automatically start, as required, after the HPCS pump started. To ensure that HPCS operability would be maintained, a decision was made to run the fan continuously in manual until an ECCS Division III outage could be entered to facilitate repairs to the fan. A caution tag was placed on the fan switch. This tag indicated that the fan would not start automatically but did not indicate the required condition of running the fan continuously to maintain HPCS operability. The tagout sheet, maintained in the main control room did identify that the fan was required to be run continuously. Maintenance Work Request (MWR) C46444 was initiated to troubleshoot the fan control circuitry.

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TEXT (if more space is required, use additional NRC Form 388A's) (17)

The fan was identified as a Significant Out-of-Service Item on the Daily Activity Schedule. The Daily Activity Schedule highlights items of significance which are being, or need to be, worked. The need to repair the fan was removed from the Daily Activity Schedule when a decision was made by management to defer the repairs until the next scheduled ECCS Division III outage.

On June 13, 1988, at approximately 0530 hours, an ECCS Division III outage was entered to facilitate scheduled maintenance.

On June 15, 1988, fan IVY08CA was shutdown to allow troubleshooting in accordance with MWR C46444. The fan control circuitry was tested and electrical contacts were cleaned. The MWR remained open pending verification of the fan's ability to start automatically.

On June 17, 1988, due to events not related to this LER, the HPCS pump operability surveillance was performed. When the fan did not start automatically after the HPCS pump initiated, as required, the utility licensed operator started the fan manually and noted the problem in the REMARKS section of the surveillance. The operator performing the surveillance did not review the instructions on the fan's caution tag sheet so, at the completion of the test, the system was returned to its pre-surveillance performance status and the fan was shutdown.

On June 17, 1988, at approximately 1700 hours, with fan IVY08CA shutdown, ECCS Division III was incorrectly declared operable.

On June 24, 1988, at approximately 2310 hours, due to events not related to this LER (reference LER 88-017-00), the reactor automatically shutdown and the plant entered Mode 3. Upon recovery from the shutdown, on June 25, at approximately 2230 hours, the plant entered Mode 2 and on June 26, at approximately 1210 hours, the plant entered Mode 1. Technical Specification 3.0.4 requires that prior to entry into an operational condition, the conditions for the Limiting Conditions for Operation (LCOs) be met. The LCO for Technical Specification 3.5.1 requires ECCS Divisions I, II, and III be operable in Modes 1, 2, and 3. Since the fan would not start automatically, and was not running continuously, Division III was inoperable and the provisions of Technical Specification 3.0.4 were not met.

On July 3, 1988, at 1420 hours, with the plant at 100% power, and reactor steam dome pressure at approximately 1000 pounds per square inch gauge (psig), Reactor Core Isolation Cooling (RCIC) [BN] was isolated and declared inoperable in order to perform an investigation of a relay [RLY] problem. Technical Specification 3.5.1 prohibits both RCIC and ECCS Division III from being inoperable simultaneously while in Modes 1, 2 and 3. Additionally, Technical Specification 3.7.3 requires plant shutdown with both RCIC and HPCS

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TEXT (if more space is required, use additional NRC Form 386A's) (17)

inoperable simultaneously while in Modes 1, 2, and 3 with the reactor steam dome pressure greater than 150 psig. Technical Specifications 3.5.1 and 3.7.3 were violated by isolating RCIC. RCIC was declared operable July 5, 1988, at 1510 hours.

On July 6, 1988, at 0050 hours, with the plant at 100% power, ECCS Division II was taken out of service and declared inoperable to perform scheduled maintenance. Technical Specification 3.5.1 prohibits both ECCS Divisions II and III from being inoperable simultaneously while in Modes 1, 2, and 3. Technical Specification 3.5.1 was therefore violated. ECCS Division II was declared operable July 8, 1988 at 1424 hours.

On July 7, at approximately 0500 hours, the HPCS pump room fan was found shutdown by the NRC Resident Inspector. It was manually started at that time. At 0600 hours the fan was shutdown to determine if it would start automatically. The HPCS pump was started and one of the two fans (1VY08CB) started automatically; the other (1VY08CA) did not. Fan 1VY08CA was started manually, and was left running. Subsequently, the fan was verified to be running each shift until repairs on the fan were completed. The fan repairs were completed and the HPCS pump operability surveillance successfully completed on July 11, 1988, at approximately 2125 hours.

During the period that the fan was shutdown, licensed utility operator tag and equipment status reviews did not identify that the fan was not in the status required to maintain HPCS operability.

No automatic or manually initiated safety system responses were necessary to place the plant in a safe and stable condition. No other equipment or components were inoperable at the start of this event such that their inoperable condition contributed to this event.

CAUSE OF EVENT

The cause of this event is attributed to a lack of awareness of the fan status required to maintain HPCS operability, due to the insufficient review of tag instructions. Additionally, operators were not aware that VY fans 1VY08CA and 1VY08CB are not redundant.

Operations supervisory personnel failed to follow through to ensure that HPCS operability was maintained. The failure to follow through contributed to the event and led to a delay in performance of fan repairs and failure to run the fan continuously when repairs were not successfully completed.

Removing fan 1VY08CA from the Daily Activity Schedule Significant Equipment Out of Service List contributed to the delay in performance of fan repairs.

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

CORRECTIVE ACTION

Each of the individuals involved in the events leading to the Technical Specification violations of this LER has been counselled.

A memo has been issued to all operators and Shift Supervisors reminding them of the need to track potential operability restraints as "red arrow" entries in their logs.

A memo has been issued to all operators instructing them to ensure caution tags contain all pertinent information. The caution tag format is being evaluated. This action is expected to be complete by October 1, 1988. If necessary, the caution tag format will be revised.

In order for an item to be deleted from the Daily Activity Schedule Significant Equipment Out-of-Service list, prior to work being complete, approval must be given by either the Assistant Manager - Plant Operations or the Supervisor - Operations. This change in methodology went into effect July 15, 1988.

The Nuclear Training Department will develop a plan to increase the emphasis placed on support systems during training on Technical Specification systems. This action will be completed by December 31, 1988.

Operations supervision has increased the detail of their questioning of operators to ensure that operators are aware of inoperable equipment, work in progress, and system status. This questioning is being done in an instructive and constructive manner not meant to be intimidating.

ANALYSIS OF EVENT

This event is reportable under the provisions of 10CFR50.73(a)(2)(1)(B), due to operation prohibited by the plant Technical Specifications.

HPCS was inoperable from approximately 0530 hours June 13, 1988, when the ECCS Division III outage began, until 0600 hours July 7, 1988, when the HPCS pump room fan was started. This exceeded the 14 day limit of Technical Specification 3.5.1.

Two mode changes were made during the time HPCS was inoperable, violating the requirements of Technical Specification 3.0.4.

On separate occasions when HPCS was inoperable, RCIC and ECCS Division II were also inoperable. These conditions are conditions prohibited by Technical Specification 3.5.1 when in Modes 1, 2, and 3. The plant was not shutdown as required, by Technical Specification 3.7.3, when RCIC and HPCS were inoperable simultaneously with reactor steam dome pressure greater than 150 psig, in Mode 1.

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TEXT (If more space is required, use additional NRC Form 2054-2 (17))

RCIC and ECCS Division III were inoperable simultaneously from July 3, 1988, at 1420 hours, until July 5, 1988, at 1510 hours. ECCS Division II and III were inoperable simultaneously from July 6, 1988, at 0050 hours, until July 8, 1988, at 1424 hours.

The purpose of HPCS is to ensure that the reactor core is adequately cooled to limit fuel clad temperature in the event of a small break in the reactor coolant system and loss of coolant which does not result in rapid depressurization of the reactor vessel. The HPCS system permits the reactor to be shutdown while maintaining sufficient reactor vessel water level inventory until the vessel is depressurized. Although the automatic start feature of the HPCS pump room fan was inoperable, HPCS system operating procedure, CPS 3309.01, HIGH PRESSURE CORE SPRAY, instructs personnel to manually start the fans if they do not automatically start following HPCS pump initiation. Since the fan was capable of being manually started, use of the system operating procedure would have prevented the HPCS pump from overheating and subsequently failing. Therefore, this event was not safety significant for existing plant conditions or other plant modes or power levels.

During the period when RCIC was unavailable, ECCS Divisions I and II, the motor driven reactor feed pump, and the Automatic Depressurization System, were both available to supply water to the reactor.

During the period when ECCS Divisions II and III were inoperable, RCIC, the motor driven reactor feed pump, the Automatic Depressurization System, and ECCS Division I were available to supply water to the reactor.

ADDITIONAL INFORMATION

LER 88-004-00 discussed the removal of the Division I hydrogen recombiner from service while the Division II Diesel Generator was inoperable. This resulted in a Technical Specification violation.

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

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ILLINOIS POWER COMPANY



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

August 6, 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. 88-018-00

Dear Sir:

Please find enclosed Licensee Event Report No. 88-018-00:
Pump Room Cooling Fan Left Shutdown Following Surveillance Due to
Insufficient Review of Tag-Out Instructions Renders High Pressure Core
Spray System Inoperable. This report is being submitted in accordance
with the requirements of 10CFR50.73.

Sincerely yours,

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

TS/bjc

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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