

**LICENSEE EVENT REPORT (LER)**

(See reverse for required number of digits/characters for each block)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-8 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Clinton Power Station		DOCKET NUMBER (2) 05000461	PAGE (3) 1 OF 4
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TITLE (4)  
Inattention to Detail During Performance of Design Change Causes One Train of Suppression Pool Mode of Residual Heat Removal System to be Outside of Its Design Basis

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 NAME	DOCKET NUMBER
10	02	98	1998	034	00	10	30	98	None	05000
									None	05000

OPERATING MODE (9) 4	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)									
POWER LEVEL (10) 000	20.2201(b)	20.2203(a)(2)(v)	50.73(a)(2)(i)	50.73(a)(2)(viii)						
	20.2203(a)(1)	20.2203(a)(3)(ii)	X 50.73(a)(2)(ii)	50.73(a)(2)(x)						
	20.2203(a)(2)(i)	20.2203(a)(3)(iii)	50.73(a)(2)(iii)	73.71						
	20.2203(a)(2)(ii)	20.2203(a)(4)	50.73(a)(2)(iv)	OTHER						
	20.2203(a)(2)(iii)	50.36(c)(1)	50.73(a)(2)(v)	Specify in Abstract below or in NRC Form 366A						
20.2203(a)(2)(iv)	50.36(c)(2)	50.73(a)(2)(vii)								

LICENSEE CONTACT FOR THIS LER (12)

NAME M. J. Walther, Engineer, Nuclear Station Engineering	TELEPHONE NUMBER (include Area Code) (217) 935-8881, Extension 4024
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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)

X YES (If yes, complete EXPECTED SUBMISSION DATE).	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
			12	15	98

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On December 22, 1997, while operating the Residual Heat Removal system, Operations personnel discovered that motor operated valve 1E12-F024B would not operate when the control room handswitch was manipulated to open the valve. Review of the electrical drawings for the system revealed that valve 1E12-F024B will not open when the circuit breaker for valve 1E12-F006B is open. The circuit breaker for valve 1E12-F006B was open as part of a design change installed in July 1997 to address a 10CFR50 Appendix R concern. Because valve 1E12-F024B could not be operated remotely from the control room as required, the plant was in a condition outside of its design basis. The cause of this event was inattention to detail by the design change preparer and reviewers. A design change will be installed to allow the circuit breaker for valve 1E12-F006B to be open without affecting the operation of valve 1E12-F024B. This modification will be installed prior to startup from the current outage.

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

DESCRIPTION OF EVENT

On December 22, 1997, Operations personnel were operating the Residual Heat Removal (RHR) [BO] system "B" to lower level in the suppression pool. During this activity, motor operated valve [20] 1E12-F024B (RHR discharge to suppression pool) would not open when Operations personnel attempted to open the valve in accordance with Clinton Power Station procedure 3312.01 "RESIDUAL HEAT REMOVAL (RHR)". Review of the electrical drawings for the valve indicated that 1E12-F024B will not open when the circuit breaker for motor operated valve [20] 1E12-F006B (RHR shutdown cooling injection valve) is open. This is due to an interposing relay that is powered from the 1E12-F006B electrical breaker to provide a permissive for valve 1E12-F024B to operate when 1E12-F006B is closed. Review of the configuration of the plant at the time of this event disclosed that the circuit breaker for 1E12-F006B was open. The interposing relay was installed in the plant in order to prevent inadvertent reactor vessel draining during plant shutdown. This is accomplished by not allowing valve 1E12-F024B to open unless 1E12-F006B is fully closed. The circuit breaker for 1E12-F006B was open as specified in plant operating procedure CPS No. 3312.01. In this configuration local manual action is required to place the "B" train of the RHR system in the suppression pool cooling mode of operation.

The circuit breaker for 1E12-F006B was opened as part of a design change to resolve concerns related to 10CFR50 Appendix R compliance. The specific concern that the design change addressed was that a hot short in the control cables for valve 1E12-F006B could cause it to go open during a fire. If valve 1E12-F006B is open, then valve 1E12-F024B would not open from the main control room because of the interlock installed to prevent inadvertent reactor vessel drain down. Method two of the safe shutdown analysis requires 1E12-F024B to open from the closed position. Because the hot short in the control circuitry would not allow 1E12-F024B to open remotely from the control room, it would have to be opened manually. However, eight hour emergency minimum battery [BTRY] supplied lighting [FH] was not provided near the valve or its egress path as required by 10CFR50 Appendix R for manual operation. This condition was previously reported in Licensee Event Report 97-016.

In order to address the 10CFR50 Appendix R concern, a design change was prepared (Engineering Change Notice 30211) to require that the circuit breaker for 1E12-F006B be open in Modes 1, 2, and 3 with reactor pressure greater than 97 pounds per square inch gauge (PSIG). The design change included installation of an annunciator bypass to allow the associated loss of power annunciator in the control room to be bypassed when the circuit breaker for 1E12-F006B was open. This design change was released for operation on July 16, 1997. During the period this design change was installed, suppression pool cooling was not required to be operable by the plant Technical Specifications or 10CFR50 Appendix R, as the plant was already in Mode 4 (Cold Shutdown). During the design change process neither the design engineer or reviewers identified that opening the circuit breaker for 1E12-F006B would prevent 1E12-F024B from opening.

On October 2, 1998, plant personnel determined that this event was reportable as operation of the plant outside its design basis. At that time the plant was in cold shutdown (Mode 4), reactor [RCT] temperature was being maintained between 95 and 115 degrees Fahrenheit, and reactor pressure was atmospheric.

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

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

CAUSE OF THE EVENT

The cause of this event was inattention to detail by the preparer and reviewers of the design change that opened the circuit breaker for valve 1E12-F006B. The preparer and reviewers were aware of the valve interlocks but incorrectly assumed a different electrical configuration for that interlock.

CORRECTIVE ACTIONS

Modification RH-048 will be installed prior to startup from the current outage. This modification allows the circuit breaker for 1E12-F006B to be open without affecting the operation of 1E12-F024B so that the requirements of 10CFR50 Appendix R can be met. Additional corrective actions related to the cause of this event will be provided in a revision to this Licensee Event Report after the extent of condition is determined.

ANALYSIS OF EVENT

This event is reportable under the provisions of 10CFR50.73 (a)(2)(ii)(B) as a condition that resulted in the plant operating outside its design basis. The opening of 1E12-F006B as part of Engineering Change Notice (ECN) 30211 placed the plant outside its design basis by requiring local operator action to open valve 1E12-F024B for method two of the safe shutdown analysis.

During the time period that ECN 30211 was installed, the plant was in Mode 4 (Cold Shutdown). In Mode 4, the Plant Technical Specifications do not require suppression pool cooling to be operable. The redundant RHR "A" train was not affected by this condition. Had the plant been in a mode that required suppression pool cooling to be operable, local action operators would have been required to manually open 1E12-F024B to place the RHR system "B" train in suppression pool cooling. This action, if necessary under design basis accident loss of coolant accident conditions, would have required either operating 1E12-F024B manually or closing the circuit breaker for 1E12-F006B. This action could have been precluded or delayed based on in-plant radiation levels. The analysis for the design basis accident assumes that suppression pool cooling is started about thirty minutes after the start of the accident.

This condition was originally determined to not be reportable per 10CFR50.73(a)(2)(ii)(B) (outside of design basis). This determination was made based on the information that, since installation of the modification the plant had not operated in a mode which required this design feature to be operable. However, after discussion with the NRC on October 2, 1997, Illinois Power determined that application of this reporting criteria is not plant operating mode dependent and therefore, this condition is reportable per 10CFR50.73(a)(2)(ii)(B).

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This condition has existed since July 16, 1997, when ECN 30211 was installed in the plant and will not be corrected until modification RH-048 is installed.

ADDITIONAL INFORMATION

No equipment or components failed during this event.

Review of Licensee Event Reports submitted in the last two years did not reveal other instances of inattention to detail in recently implemented design changes causing the plant to be outside of its design basis.

For further information on this event contact Mike Walther at (217) 935-8881 extension 4024.