Commonwealth Edison Company
Dresden Generating Station
6500 North Dresden Road
Morris, IL 60450
Tel 815-942-2920

ComEd

April 21, 1995

TPJLTR 95-0042

U.S. Nuclear Regulatory Commission
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Washington, D. C. 20555

Licensee Event Report 95-006, Docket 50-249 is being submitted as required by Technical Specification 6.6, NUREG 1022 and 10CFR50.73(a)(2)(v).

Sincerely,

Thomas P. Joyce
Site Vice President

TPJ/GLC:cfq

Enclosure

cc: J. Martin, Regional Administrator, Region III
NRC Resident Inspector's Office
File/NRC
File/Numerical

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NRC FORM 366 (5-92) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 5/31/95

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), 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.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Dresden Nuclear Power Station, Unit 3	05000249	1 OF 4

TITLE (4)
Failure of Isolation Condenser Vent Valve to Meet DATR Specified Closure Stroke Time Due to Changes in Stroke Testing Method and Low Margin

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
03	27	95	95	-- 006 --	00	04	24	95	None	
									FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	N
POWER LEVEL (10)	098

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)

	20.2201(b)		20.2203(a)(3)(i)		50.73(a)(2)(iii)		73.71(b)
	20.2203(a)(1)		20.2203(a)(3)(ii)		50.73(a)(2)(iv)		73.71(c)
	20.2203(a)(2)(i)		20.2203(a)(4)	X	50.73(a)(2)(v)		OTHER
	20.2203(a)(2)(ii)		50.36(c)(1)		50.73(a)(2)(vii)		(Specify in Abstract below and in Text, NRC Form 366A)
	20.2203(a)(2)(iii)		50.36(c)(2)		50.73(a)(2)(viii)(A)		
	20.2203(a)(2)(iv)		50.73(a)(2)(i)		50.73(a)(2)(viii)(B)		
	20.2203(a)(2)(v)		50.73(a)(2)(ii)		50.73(a)(2)(x)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Gerald Cooper, System Engineer Ext. 2270	(815) 942-2920

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 15 single-spaced typewritten lines) (16)

On March 27, 1995, with Unit 3 operating at 98% rated core thermal power, Operations was performing valve timing of the Isolation Condenser vent valve. Total valve closure time of 5.07 seconds exceeded maximum time of 5 seconds. The downstream isolation valve was closed and the Isolation Condenser was declared inoperable. The time delay was adjusted and the valve returned to service. The causes of the event were as follows; The change in the valve stroke timing methodology and the replacement of various parts served to increase the base time for the valve stroke. Also the addition of the relay in the 1987 modification subtracted between 1.5 to 2.0 seconds from the original valve stroke time of 5 seconds. The combination of events ultimately resulted in an unacceptable valve stroke time and LCO. The corrective action was to complete the analysis initiated in January 1995 and increase the total valve stroke time to 10 seconds. The safety significance was minimal since the downstream isolation valve was determined to close within 5 seconds and the ADS system and the HPCI system were available.

PLANT AND SYSTEM IDENTIFICATION:

Dresden Unit 3 is a General Electric boiling water reactor with 2257 MWt rated core thermal power. System identification is Reactor Isolation Condenser System [BL]. Identification System (EIIS) codes are identified in the text as [xx].

Nuclear Tracking System (NTS) tracking code numbers are identified in the text as (xxx-xxx-xx-xxxxx).

EVENT IDENTIFICATION:

Failure of Isolation Condenser Vent Valve to Meet DATR Specified Closure Stroke Time Due to Changes in Stroke Testing Method and Low Margin

A. PLANT CONDITIONS PRIOR TO EVENT:

Unit: 3 Event Date: 03/27/95 Event Time: 16:48

Reactor Mode: N Mode Name: Run Power Level: 98%

Reactor Coolant System Pressure: 1004 psig

B. DESCRIPTION OF EVENT:

On March 27, 1995, Unit 3 was in the Run Mode operating at 98% power. At 1648 hours while performing DOS 1600-05, U3 Quarterly Valve Timing, for Primary Containment [NH] valve stroke time verification the Isolation Condenser [BL] vent valve 3-1301-17 was found to have a valve stroke time of 3.4 seconds (Normal </=3 seconds). Operations requested the Instrument Maintenance Department to perform DIS 1300-07, Isolation Condenser Steam/Condensate Line High Flow Calibration, for determining the time for actuation of time delay relay
3-595-115C. The time for valve stroke must be added to the time delay actuation time to obtain total time allowed for valve stroke time. The actuation time for the time delay relay was 1.67 seconds. The sum of the two values exceeded the Dresden Administrative Technical Requirements, 3/4.18 Primary Containment Isolation Valves, Table 3/4.18.1, of maximum valve closure time of 5 seconds by .07 seconds. The valve was declared inoperable and the associated isolation valve, 3-1301-20, was closed as directed in Tech Specs. The Isolation Condenser was declared inoperable due to the inability to vent noncondensible gases from the system. The Instrument Department adjusted the time delay relay to actuate at 1.58 seconds (1.5 to 2.0 seconds is acceptable) which brought the total time to less than 5 seconds. The LCO was exited at 22:31 on March 27, 1995.

C. CAUSE OF EVENT:

This report is being submitted in accordance with 10 CFR 50.73(a)(2)(v)(B), which requires the reporting of any event or condition that alone could have prevented the fulfillment of the safety function of structures or systems that are needed to remove residual heat.

The previous total valve stroke time was measured on January 12, 1995 as 4.93 seconds (valve time of 3.2 seconds). The valve manufacturer identified that the

expected stroke time for the valve is approximately 3 seconds. The latest IST data showed that the valve closing time is in the same range as reported by the vendor. Therefore, the AOV performance is as expected and shows no signs of unexplained degradation.

Based on the valve stroke time of 3.2 seconds on January 12, 1995, a request was made to evaluate the acceptability of extending the total valve stroke time to 10 seconds. The Lead Unit Planner and the Operations' Schedulers were not aware of engineering department efforts to extend the valve stroke time. When the Reactor Water Clean Up System was not required, an opportunity to perform the quarterly valve timing surveillance DOS 1600-05 became available and the surveillance schedule was moved ahead by two weeks. The evaluation had not been completed when engineering was notified the valve exceeded the DATR requirements. Engineering expedited the evaluation and prepared the changes required to the DATR, UFSAR, and procedures; DOS 1600-05, DOS 1600-03, and DIS 1300-07 to increase the valve stroke time to 10 seconds. The evaluation was completed and the required changes were implemented on March 28, 1995. The IST Program presently trends the performance of the valve. The instruction provides an alert range and a required action range for each valve in DOS 1600-03 and DOS 1600-05. The IST values are more restrictive than the DATR value for AOVs 1301-17 and 1301-20. In order to improve reliability of AOVs, a program to address preventative maintenance and diagnostic testing of safety significant AOVs is under development and is expected to be implemented by May 31, 1995 (NTS # 237-180-95-00203).

Additionally, in 1987 the time delay relays for Unit 3 Isolation Condenser Vent Valves were installed per Modification M12-3-87-37. The purpose of the modification was to prevent Group V isolations due to spurious actuation of the Barton DP switches used to monitor steam or condensate high flow. Subsequently, the original General Electric Time Delay Relays (Model CR2820B) were replaced with Agastat Time Delay Relays (Model E7022PB002) in 1990. Part of the modification design basis was to subtract the time delay relay actuation time (1.5 to 2 seconds) from the required maximum valve stroke time of 5 seconds. Test methodology was changed. Historically, the start of valve stroke was measured from position indication. Start of valve stroke is now measured from operator switch actuation. The replacement of parts (i.e. new solenoid and packing) also increased the valve stroke time base. Reducing the DATRs maximum valve closure time by 2 seconds during the modification resulted in a DOS 1600-05 acceptance criteria for AOVs 3-1301-17 and 3-1301-20 that is too tight to meet with the increased base value even if the AOVs are in good operating condition. Any change in the friction force of the packing causes the valve stroke time to change, normally increasing the valve stroke time. A request was made in January 1995 to evaluate changing the valve stroke time to 10 seconds. The evaluation was performed and the DATR maximum closure time was revised to 10 seconds on March 28, 1995.

The causes of the event were as follows:. The change in the valve stroke timing methodology and the replacement of various parts served to increase the base time for the valve stroke. Also the addition of the relay in the 1987 modification subtracted between 1.5 to 2.0 seconds from the original valve stroke time of 5 seconds. The combination of events ultimately resulted in an unacceptable valve stroke time and LCO. The corrective action was to accomplish the analysis and increase the total valve stroke time to 10 seconds.

D. SAFETY ANALYSIS:

The purpose of the Isolation Condenser Vent Valves 3-1301-17 and 1301-20 is to prevent the accumulation of non-condensible gasses that could potentially lessen the effectiveness of the Isolation Condenser system. The 3-1301-17 and 3-1301-20 valves are also part of the Primary Containment Group I and Group V logic circuitry and will close when one of the following conditions is met;

Group I
- Reactor Low Low Water Level
- Main Steam Line High Flow
- Main Steam Line High Radiation
- Main Steam Tunnel High Temperature
- Main Steam Line Low Pressure

Group V
- 300% Isolation Condenser Steam or Condensate Flow

The immediate result of the increased valve closure time is to allow steam to flow back to the main steam line "A" for an additional .07 seconds. Since the UFSAR main steam line break analysis assumes 10 seconds closing time for the MSIVs, it is concluded, the impact of closing AOV 1301-17 in 5.07 seconds was negligible. Also AOV 1301-20, which is in series with AOV 1301-17 valve and actuates on the same Group I or Group V signal, was found to have a total valve stroke time of 4.25 seconds. This would have accomplished the primary containment isolation function within the 5 second criteria. The Automatic Depressurization System (ADS) and the HPCI [BJ] system were available during the time the isolation system was declared inoperable. Therefore, the safety significance of this event is considered to be minimal.

E. CORRECTIVE ACTIONS:

When the Site Engineering Department was notified of the timing failure they proceeded to expedite the changes, already in review, required to the DATR, UFSAR, and procedures DOS 1600-05, DOS 1600-03, and DIS 1300-07 to increase the valve stroke time to 10 seconds. The changes were processed and completed on March 28, 1995. The IST Program presently trends the performance of the valve. The instructions provides an alert range and a required action range for each valve in DOS 1600-03 and DOS 1600-05. The IST values are more restrictive than the DATR value for AOVs 1301-17 and 1301-20.

F. PREVIOUS OCCURRENCES:

None.

G. COMPONENT FAILURE DATA:

None.