NRC Form 366 (9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES 8/31/85

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
BIG ROCK POINT PLANT	0 5 0 0 0 1 5 5	1 OF 0 3

TITLE (4)

Technical Specification Violation - Limit for CRD Withdraw Time

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)
1 1	2 2	8 7	8 7	— 0 1 3	— 0 0	1 2	2 2	8 7	N/A	0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	0 0 0	20.402(b)	20.405(c)	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)	X 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
CRAbel or RJAlexander	AREA CODE 6 1 6 5 4 7 - 6 5 3 7

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)

During a reactor startup on November 22, 1987 (1047 hours) three (3) control rod drives were observed to have "double" notched during withdrawal. Startup was immediately terminated and all control rods inserted to allow investigation of the problem.

On November 22, 1987 (1743 hours) during performance of Control Rod Drive Timing tests, two (2) control rod drives were found to have withdraw times of 21.7 and 22.6 seconds. These values exceeded the Big Rock Point Technical Specification 5.2.2(a)(iv) minimum withdraw time of 23 seconds.

Further investigation concluded that the CRD timing is affected by recirculating pump valve position and flowrate. All thirty-two (32) control rod drives were timed and reset to acceptable values with the recirculating pumps at full flow.

At 0105 hours on November 23, 1987, reactor startup commenced.

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Big Rock Point Plant	0 5 0 0 0 1 5 5	8 7	— 0 1 3	— 0 0	0 2 OF 0 3

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

Description of Event

During a reactor startup on November 22, 1987 (1047 hours) following a planned maintenance outage, three (3) control rod drives (AA) were observed to have "double" notched during withdrawal. Not knowing the cause, reactor startup was immediately terminated and all control rods were inserted to allow investigation of the problem.

On November 22, 1987 (1743 hours), the control rod drive performance test; Part C "CRD Timing and Rate Set Valve Positions" was conducted. Results showed that drives experiencing "double" notching had "fast" withdrawal times and two (2) control rod drives were found to have withdraw times of 21.7 and 22.6 seconds. These values exceeded the Big Rock Point Technical Specification 5.2.2(a)(iv) minimum withdraw time limit of 23 seconds.

Cause

Big Rock Point Plant's control rod drive maneuvering system uses discharge pressure from the control rod drive pumps to the control rod drive piston and the discharged water during piston movement is returned to the suction of the primary system recirculating pumps. This differential pressure established causes drive withdrawal and insertion depending on valve manipulations performed by control room operators. Rate set valves are included in the insert and withdraw headers to control the speed of drive movement.

The control rod drive timing tests are performed during the Refueling Outages as required by Technical Specification 5.2.2(a). These tests are normally performed with the primary system at atmospheric pressure and the recirculating pumps out of service. Investigation following the November 22, 1987 event showed that slight increased drive speed occurred with the recirculating pumps inservice. Tests were then performed with variations of recirculating pump valve positions (to vary flow) and found that withdraw speeds were affected. The apparent reason for this increased speed is that under full flow pump operation the differential pressure is somewhat greater across the drive piston.

Corrective Actions Taken

All affected drives were retimed on November 23, 1987 with the most conservative plant conditions; recirculating pumps inservice and at full flow. The drives were also "jog" tested to insure no "double-notching" would occur.

Corrective Action to Prevent Recurrence

1. Further evaluation and testing will be performed prior to and during the 1988 Refueling Outage to determine the effect of various system parameters on drive speed.

2. Following evaluation, procedure changes will be implemented where necessary to ensure drives are tested during limiting plant conditions.

Safety Assessment

Core physics analysis is performed to ensure that control rod withdraw does not exceed the maximum allowable deposited enthalphy specified by Exxon design report XN-NF-78-51. This analysis assumes a conservative rod withdraw time of .60 seconds. The minimum withdrawal time recorded in this event was 21.7 seconds which is greater than the limiting value of the physics analysis. This concludes that no damage to the fuel would occur even under the assumption that the drive was completely withdrawn in 21.7 seconds.

Consumers Power

POWERING MICHIGAN'S PROGRESS

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December 22, 1987

Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

DOCKET 50-155 - LICENSE DPR-6 - BIG ROCK POINT PLANT -
LICENSEE EVENT REPORT 87-013 - TECHNICAL SPECIFICATION VIOLATION - LIMIT FOR CRD WITHDRAW TIME

Licensee Event Report (LER) 87-013 (Technical Specification Violation - Limit for CRD Withdraw Time) is attached. This event is reportable to the NRC per 10CFR50.73(a)(2)(i).

Ralph R Frisch
Senior Licensing Analyst

CC Administrator, Region III, NRC
NRC Resident Inspector - Big Rock Point Plant

Attachment

OC1287-0258-NL02

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