



Omaha Public Power District
444 South 16th Street Mall
Omaha, Nebraska 68102-2247

September 17, 1998
LIC-98-0118

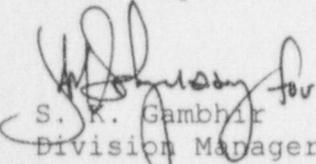
U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Station P1-137
Washington, DC 20555

Reference: Docket No. 50-285

Subject: Licensee Event Report 1998-010 Revision 0 for the Fort
Calhoun Station

Please find attached Licensee Event Report 1998-010 Revision 0 dated
September 17, 1998. This report is being submitted pursuant to
10CFR50.73(a)(2)(i)(B). If you should have any questions, please
contact me.

Sincerely,



S. K. Gambhir
Division Manager
Nuclear Operations

EPM/epm

Attachment

c: E. W. Merschhoff, NRC Regional Administrator, Region IV
L. R. Wharton, NRC Project Manager
W. C. Walker, NRC Senior Resident Inspector
INPO Records Center
Winston and Strawn

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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 THE INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 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)

Fort Calhoun Station Unit No. 1

DOCKET NUMBER (2)

05000285

PAGE (3)

1 OF 4

TITLE (4)

Violation of Technical Specifications Due to Inoperability of a Core Monitoring Program

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
02	08	1993	1998	-- 010 --	00	09	17	1998	FACILITY NAME	DOCKET NUMBER
										05000
										05000

OPERATING MODE (9)	POWER LEVEL (10)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFRs (Check one or more) (11)								
1	100	20.2201(b)	20.2203(a)(2)(v)	X	50.73(a)(2)(i)	50.73(a)(2)(viii)				
		20.2203(a)(1)	20.2203(a)(3)(i)		50.73(a)(2)(ii)	50.73(a)(2)(x)				
		20.2203(a)(2)(i)	20.2203(a)(3)(ii)		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	TELEPHONE NUMBER (Include Area Code)
Carl P. Stafford, Principal Reactor Engineer	402-533-6670

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

SUPPLEMENTAL REPORT EXPECTED (14)

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

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

During the development of troubleshooting plans to investigate a potentially defective position indication switch in the Secondary Control Element Assembly Positioning Indication System (SCEAPIS) for Control Element Assembly 17 (CEA 17), it was determined that the Better Axial Shape Selection System (BASSS) could become inoperable whenever the Technical Specification (TS) required quarterly CEA exercise surveillance test was performed. Further investigation revealed that there were two instances in Cycle 14 (February 8, 1993 and February 22, 1993), where the plant may not have been properly monitoring for Departure from Nucleate Boiling Ratio (DNBR) per TS 2.10.4(5)(a)(iv). Since it is not possible to determine whether BASSS had been inoperable for longer than two hours during these two instances, the station is making a conservative decision to report the failure to meet the TS Limiting Condition for Operation (LCO) for 2.10.4(5)(b) pursuant to 10 CFR 50.73(a)(2)(i)(B).

Corrective actions have been taken to ensure that BASSS remains operable during future performance of the CEA exercise test.

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Fort Calhoun Station Unit No. 1	05000285	1998	010	00	2 OF 4

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

BACKGROUND

Combustion Engineering Core Operating Report (CECOR) (EIIS: IO) is an analysis code used to develop the fuel assembly powers, the assembly peaking factors, the axial shape index, tilt and burnup distribution in the core from the incore instrumentation signals. CECOR is the analysis code which is used to monitor that the requirements of Technical Specification (TS) 2.10.4, "Power Distribution Limits," are maintained. CECOR is run at a minimum frequency of once per thirty days.

Mini-CECOR (EIIS: IO) is an analysis code which is identical to CECOR but has been configured to execute on the plant computer. As such, the algorithms are identical to the original mainframe version, however numerous edits have been turned off to conserve plant computer memory and speed execution. Better Axial Shape Selection System (BASSS) (EIIS: IO) is an on-line core monitoring system for Departure from Nucleate Boiling Ratio (DNBR). The algorithms associated with BASSS are run following the execution of the Mini-CECOR code and utilize outputs both from the Mini-CECOR code and actual plant variables. Mini-CECOR/BASSS executes approximately every ten minutes on the plant computer.

On August 3, 1998, surveillance test OP-ST-CEA-0003, "Quarterly CEA Exercise Test," was being performed. During this test, improper readings were received for Control Element Assembly (CEA) 17 from the Secondary Control Element Assembly Position Indication System (SCEAPIS) (EIIS: IO).

During the planning of the troubleshooting, it became apparent to the Reactor Engineer that Mini-CECOR would abort if the code detected either a CEA position deviation of greater than 1.5 percent (approximately two inches) from the group average or a CEA insertion greater than 5.5 percent of the core height, or approximately seven inches. These values for allowed group deviation and top of core deadband are user selected and have not been changed since the code was first installed on the plant computer.

A failure of Mini-CECOR to complete execution results in BASSS not executing. Thus, BASSS is inoperable during conditions where Mini-CECOR fails to execute. Additionally, if Mini-CECOR (and BASSS) fail to execute, no indication is provided to the operators in the Control Room.

Currently in Cycle 18, BASSS inoperability requires the station to restore Axial Shape Index (ASI) within the limits of Core Operating Limit Report (COLR) Figure 5, per TS 2.10.4(5)(a)(iv). Additionally, TS 2.10.4(5)(b), requires that the ASI be restored within limits within two hours.

EVENT DESCRIPTION

An investigation was undertaken to determine if previous plant conditions existed in which the plant was outside the requirements of TS 2.10.4(5)(a)(iv) and the duration of the CEA exercise surveillance test was longer than the two hour Limiting Condition for Operation (LCO) action statement of TS 2.10.4(5)(b). On August 17, 1998, the Reactor Engineer determined that BASSS was potentially inoperable in excess of two hours during the performance of

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OP-ST-CEA-0003 in Cycle 14. Specifically, on February 8, 1993, and February 22, 1993, the performance of these surveillance tests took longer than two hours (2 hours, 15 minutes and 2 hours, 34 minutes, respectively). The times are based on the interval from the authorization to begin the test until the completion of the final rod movement. If a 2 inch deviation was detected each time Mini-CECOR began execution, it is possible that BASSS was inoperable during the entire interval of the test performance. Conversely, it is also possible that conditions were favorable and Mini-CECOR/BASSS ran to completion during the performance of the surveillance test. However, since no data is available to determine when actual rod movements began or exactly how long BASSS was inoperable, the station has made a conservative determination that these tests placed the plant outside the requirements of TS 2.10.4(5)(b).

On August 17, 1998, it was determined that this condition was reportable per 10 CFR 50.73(a)(2)(i)(B). This report is being submitted pursuant to 10 CFR 50.73(a)(2)(i)(B).

SAFETY SIGNIFICANCE

The station is conservatively concluding that the LCO requirements of TS 2.10.4(5)(b) may not have been met. However, nuclear safety was not impacted by these potential violations. During the performance of OP-ST-CEA-0003, BASSS was considered inoperable. However, no DNBR or Peak Liner Heat Rate (PLHR) limit was approached. The safety analysis considers a dropped rod to be a credible accident which the plant must be designed for without either violating any DNBR or PLHR limits or experience a reactor trip. The rod deviations which occur during the performance of OP-ST-CEA-0003 are small (6 to 7 inches) and of short duration. While not documentable, it is possible that Mini-CECOR/BASSS executed properly during the surveillance test which would have reset the LCO two hour time limit. This would have occurred during the performance of OP-ST-CEA-0003 if the CEAs were within two inches of the group average when Mini-CECOR scanned the plant data, prior to execution. Additionally, it is possible that the actual duration of the test was less than two hours since the test typically does not start immediately after approval is given by the Shift Manager. Therefore, this event had no impact on the health and safety of the public.

CONCLUSION

This report is being made conservatively based on the lack of formal documentation which can support that the TS LCO requirements were met.

This event occurred because there was a failure to recognize, when Mini-CECOR/BASSS was installed in 1992, that the deadband on the Mini-CECOR input card would cause the core monitoring code to abort if a rod deviation from the group average of greater than 1.5 percent of core height (2 inches) was detected. Therefore, when the CEA exercise surveillance test was performed, a deviation of approximately six inches could be seen by Mini-CECOR which, if detected, would cause this code to abort. Additionally, the failure to recognize that BASSS was inoperable when Mini-CECOR failed to execute was exacerbated by the lack of control room indication on Mini-CECOR status. This

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resulted in neither recognizing the need to properly log into a TS LCO nor ensuring the time requirements were met.

CORRECTIVE ACTIONS

Since the discovery of the consequences of this problem, corrective actions have been taken to prevent recurrence. Specifically, the input card to Mini-CECOR has been adjusted to allow an eight inch CEA deviation or insertion, which is equivalent to the rod block allowance. Operations is logging the Mini-CECOR cycle burnup hourly to detect the failure of Mini-CECOR to execute. Alternate methods to alert the operators in the Control Room of Mini-CECOR/BASSS failure to execute will be evaluated.

PREVIOUS SIMILAR EVENTS

There have been no other instances where BASSS has been inoperable and undetected in excess of two hours.